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# MILITARY GOVERNMENT HANDBOOK

# KURILE ISLANDS

OPNAV 50E-2

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Office of the Chief of Naval Operations

Military Government Handbook

# KURILE ISLANDS

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# LETTER OF PROMULGATION

Navy Department,
Office of the Chief of Naval Operations,
Washington, 1 November 1943

MILITARY GOVERNMENT HANDBOOK

Kurile Islands

OPNAV 50E-2

1. OPNAV 50E-2 is a non-registered RESTRICTED publication. It is supplementary to and corrective of Survey of the KURILE (Chishima) Islands (S30-781) prepared under the direction of the Chief of Staff by the Military Intelligence Service, War Department General Staff. It also supplements the Asiatic Pilot (H.O.). It is intended to supply needed information for military government officers in the areas indicated.

2. Extracts from this publication may be made locally with the approval of the commander of an operation.

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F. J. HORNE,
Vice Admiral, U. S. Navy,
Vice Chief of Naval Operations.



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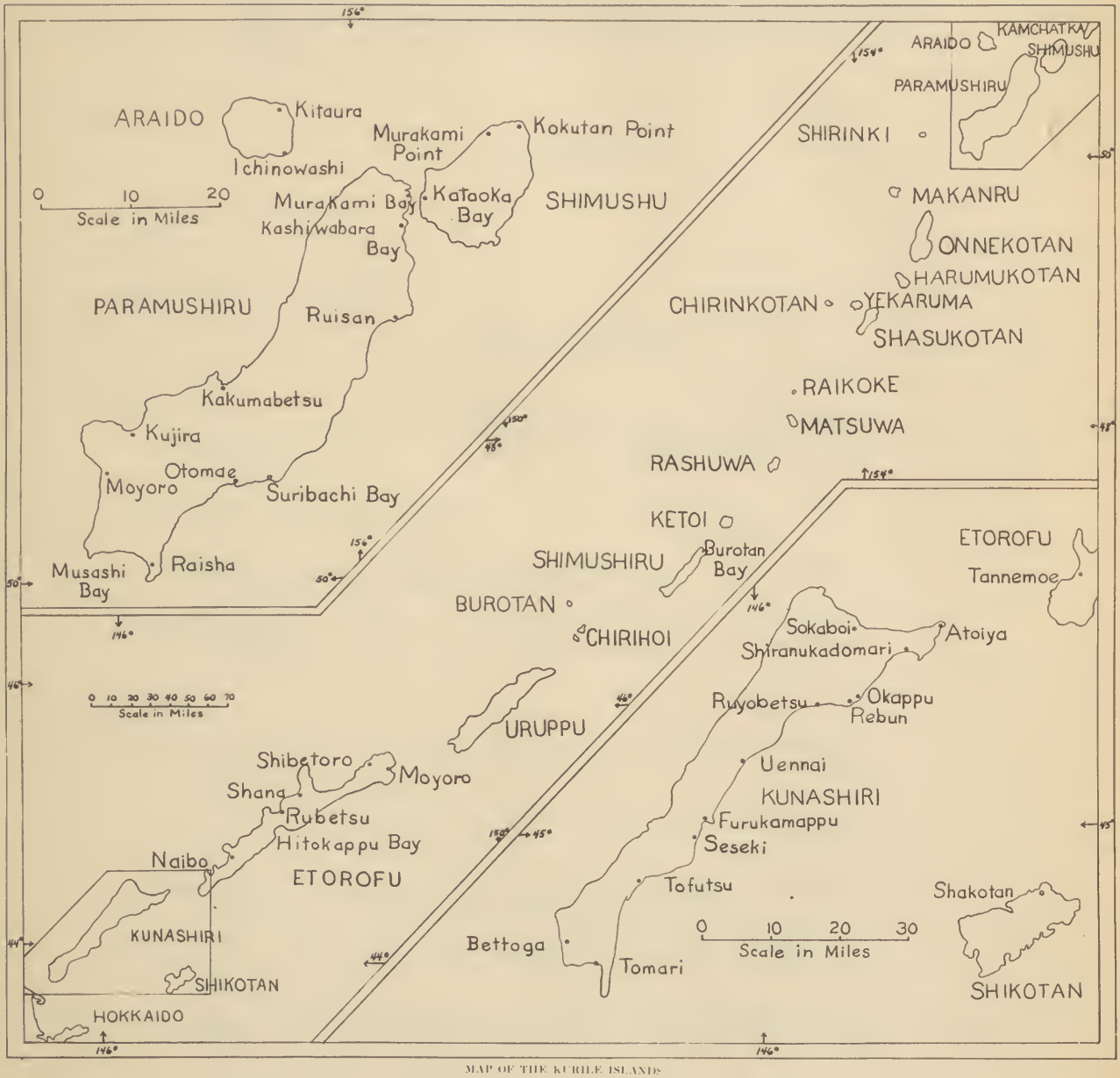
# PREFACE

This handbook is designed primarily for the use of Army and Navy commanders and their staffs and subordinates who may be concerned with military government and the control of civil affairs in the Kurile Islands. The materials included have been selected for their pertinence to the problems of administrative planning and action. Information on military objectives, being fully presented in other existing monographs, is not duplicated herewith.

The arrangement of materials follows that adopted in the Military Government Handbook on the Marshall Islands (OPNAV 50E-1), with the addition of an appendix on the individual islands. The main body of the work is divided into three parts -- 1) Basic Information, 2) Administration and Public Facilities, 3) Economics -- each part being subdivided into chapters and topics, numbered decimally. Part 1 is designed to present an over-all survey of basic information on the Kurile Islands for naval administrators. Parts 2 and 3 contain data especially pertinent to particular administrative functions or activities, and are intended primarily for reference. When there is no available information on a subject, except what can be presented in the consideration of individual islands or summarized in the Table of Contents, the corresponding chapter appears only by title in the body of the text.

During the preparation of this handbook considerable research was done in Japanese scientific periodicals not covered in the compilation of previous military monographs, of which the most complete is M.I.S. S30-781. This research yielded much new information, especially on the geography of individual islands. It was therefore decided to add to the present handbook an Appendix on Specific Islands, summarizing the old information and incorporating the new.




MAP OF THE KURILE ISLANDS

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NOTE -- The table below is designed to summarize very briefly the contents of the text. In form, it follows with slight modifications that of the first handbook in this series, OPNAV 50E-1 on the Marshall Islands. Certain topics, indicated by an asterisk below, are omitted entirely in the text, for one or another of the following reasons: (1) information is wholly lacking; (2) available information is so slight that it is adequately summarized in the Table of Contents itself; (3) the information pertains exclusively to particular islands and is therefore covered in the Appendix; (4) the facts do not differ from those for Japan proper.


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## 1. BASIC INFORMATION

11. GEOGRAPHY

111. Location. The Kurile Islands are the northernmost of the Japanese Archipelago, extending northeastward from Hokkaido to Kamchatka. — 3

112. Climate. The islands have a climate of marine type, cold, damp, and very foggy. — 4

113. Geology and Topography. The islands are all of volcanic formation; most of them are high and rugged. — 6

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125. Fauna. Fish are numerous and important; marine mammals were formerly common; sea and shore birds abound; bears and foxes are still numerous. — 9

*126. Major Facilities. The only important facilities are canning factories (see 326), warehouses (see 295), radio stations (see 273), and military installations. — 9

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13. HISTORY

131. Early Discovery and Contacts. The islands were discovered by Vries in 1643; the Russians established permanent contact with the northern islands in 1711, the Japanese with the southern islands a little later. 10

132. Political History. Russia acquired political control in the eighteenth century; the southern islands were ceded to Japan in 1854, the northern islands in 1875. 10

133. Economic Development. The Russians exploited the islands primarily for furs; fishing has become the principal industry under Japanese rule. 11

134. Missions. The Russians early converted the natives of the northern islands to Greek Orthodox Christianity. 11

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141. Racial Characteristics. The aboriginal Ainu are a light brown, hairy race with Caucasian affinities; Japanese predominate today; the few remaining Ainu are docile, submissive, and spiritless. 12

142. Language. Japanese is the dominant language; even the Ainu speak it in addition to their own language. 12

143. Population. In 1940 the permanent inhabitants numbered 17,549; fewer than 400 were Ainu, the rest being Japanese; nearly 30,000 migratory workers swell the population in the summer. 12

*144. Vital Statistics. Detailed birth, death, and morbidity statistics are lacking. 13

*145. Personalities. No Europeans, except possibly a few Norwegian whalers, are known to reside in the Kuriles. 13

15. CUSTOMS

151. Clothing and Ornamentation. The Ainu have largely adopted Japanese habits of dress. 14

152. Life Routine. Economic activity is seasonal; fishing, the principal occupation, is confined to the summer months. 14

153. Sex and Marriage Customs. The Japanese conform to the usages of Japan; the looser Ainu customs have probably been modified by Japanese contact. 14

154. Funeral Practices and Religion. The Ainu formerly buried their dead; Russian and Japanese influences have altered their native religion; the Japanese worship at Shinto shrines and Buddhist temples. 14

*155. Art and Recreation. Native art and recreation were poorly developed; recreational life among the Japanese appears similar to that of fishermen in Japan. 14

*156. Native Warfare. In the distant past the Ainu were warlike; today they are completely subdued. 15

*157. Attitudes and Values. No information is available as to special attitudes and values prevailing among the Japanese of the Kuriles. 15

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*158. Etiquette. A high value is placed on formal etiquette in both Ainu and Japanese culture. 15

*159. Conduct Considered Especially Offensive. No information is available on this subject. 15

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*161. Family and Kinship. Japanese family and kinship organization apparently does not differ from that in Japan proper. 16

*162. Clans. In the migration of the Japanese into the Kuriles their rural clan organization appears to have disintegrated. 16

*163. Towns and Villages. The most important towns are located in the southern Kuriles (see Appendix A). 16

*164. Social Classes. The class structure of Japan prevails; most of the inhabitants are of lower or lower-middle class; the Ainu are despised. 16

*165. Minorities. The Ainu constitute the only minority group; they are rapidly undergoing assimilation. 16

*166. Associations. The only associations reported are fishermen's guilds (see 335). 16

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21. GOVERNMENT

*211. Native Political Institutions. Formerly each Ainu village was ruled by a chief, assisted by subordinate officials; native government has entirely disappeared. 19

212. Colonial Policy. The Japanese Government has promoted economic development and colonization; it also regards the Kuriles as a strategic asset. 19

213. Central Administrative Organization. The Kuriles fall within the jurisdiction of the Hokkaido prefecture. 19

214. District Administrative Organization. All the Kuriles lie technically within the jurisdiction of the Nemuro branch of the Hokkaido prefecture, but the central and northern islands are actually administered by the Department of Agriculture and Forestry. 19

215. Local Administrative Organization. The Kuriles are organized into counties and townships, but organized local government exists only in the southern islands. 19

216. Civil Rights. The Ainu do not possess the rights of Japanese citizenship. 20

217. Political Factions and Movements. There appear to be no significant dissident elements; the Ainu are politically inert. 20

22. LAW AND JUSTICE

*221. Native Legal Institutions. The Ainu formerly settled quarrels by private compromise or retribution; if the village were aroused the chief might intervene and render judgment with the advice of the assembled elders. 21

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*222. Crime Statistics. No statistics are available on the prevalence of crime. 21

223. Police Organization. There are two police stations, at Tomari and Shana; the Department of Agriculture and Forestry maintains coast patrols. 21

*224. Law Enforcement. Laws are enforced by the police and the coast patrols. 21

*225. Civil and Criminal Law. The civil and criminal laws of Japan presumably apply to the Kurile Islands. 21

226. Judicial Organization. The Nemuro district court maintains three branch offices in the Kuriles. 21

*227. Court Procedure. Judicial procedure appears to be the same as in Hokkaido. 21

*228. Offenses and Sanctions. Punishments are presumably the same as in Japan; since no jails are reported, prisoners are probably transported to Nemuro. 21

*229. Records. All official records are probably deposited in the Nemuro branch office and with the Department of Agriculture and Forestry on Hokkaido. 21

23. PUBLIC SAFETY

231. Fire Prevention and Control. In the southern Kuriles there are guilds for the prevention of forest fires. 22

*232. Emergencies. The principal emergencies are storms, forest fires, and occasional earthquakes and volcanic eruptions. 22

*233. Defense Organization. Military defenses are strong; the police appear to be the only group capable of organizing a system of civilian defense. 22

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241. Standard of Living. Living standards in the southern islands are comparable to those in Japan; they are lower in the northern islands. 23

*242. Poverty and Dependency. The Ainu are very poor; there is no information on the prevalence of dependency. 23

*243. Private Relief. There are no known private relief agencies in the Kuriles. 23

*244. Welfare Agencies. There is no information on public welfare agencies. 23

*245. Social Insurance. There is presumably a pension system for government officials, but no social insurance measures are reported. 23

*246. Conservation. Regulations and patrols protect fur-bearing animals; the central Kuriles are essentially a game preserve. 23

25. HEALTH AND SANITATION

251. Diseases and Dietary Deficiencies. The most important diseases appear to be syphilis, respiratory infections, and enteric diseases. 24

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*252. Native Medicine. The Ainu use herbs and magical formulas in the treatment of disease. 24

*253. Government Medical Services. There is a hospital at Rubetsu on Etorofu, but its size, facilities, and equipment are not reported. 24

*254. Private Medical Practice. In 1933 there were four doctors on Kunashiri, one on Shikotan, and five on Etorofu; whether they were government physicians or private practitioners is not reported. 24

*255. Control of Communicable Diseases. No information is available on quarantine or other disease control measures. 24

*256. Disposal of Sewage and Waste. Though not specifically reported, latrines have doubtless been installed in the larger Japanese settlements. 24

*257. Regulation of Food and Water. There is no information; Japanese laws probably apply. 24

*258. Regulation of Drugs and Alcohol. No information is available on the regulation of the drug traffic or the sale and use of alcohol. 24

26. EDUCATION AND PROPAGANDA

*261. Family Training. The home training of Japanese children is presumably the same as in Japan. 25

262. Educational System. There are about twenty elementary public schools in the southern Kuriles. 25

*263. Propaganda and Public Relations. No information is available on the extent to which radio and the schools are used as organs of propaganda. 25

*264. Censorship. Although not reported, it is highly probable that mails to and from the Kuriles have been censored for some time. 25

27. COMMUNICATIONS

271. Postal Service. Paramushiru has a branch post office, open in the summer; Kunashiri and Etorofu have seven post offices, which operate the year around. 26

272. Telephone, Telegraph, and Cable. Telephone and telegraph communications are available only in the southern islands. 26

273. Radio. Government radio stations are numerous, especially in the northern Kuriles. 26

*274. Motion Pictures. Information is lacking, but motion pictures are doubtless shown in some of the larger towns. 26

*275. Newspapers and Periodicals. No local publications are reported; Japanese residents doubtless receive their newspapers and periodicals by mail from Japan. 26

28. PUBLIC UTILITIES

*281. Water System. Some inland lakes are used as reservoirs, the water being piped to canning factories. 27

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*282. Sewerage System. There is no indication of any extensive sewerage installations. 27

*283. Gas Works. No gas works are reported, and presumably there are none in the Kuriles. 27

*284. Electric Light and Power Facilities. There are local generators for radio stations and canning factories; the streams of Paramushiru are said to be potential sources of power for hydro-electric development. 27

285. Public Buildings, Parks, and Improvements. Schools, government offices, and a hospital are the only public buildings reported. 27

29. TRANSPORTATION

291. Road Transport. Good roads are few; overland transport is largely by pack horse. 28

*292. Rail Transport. No railroads are reported for the Kurile Islands.

293. Air Transport. Commercial aviation has not been developed; weather conditions make flying difficult. 28

294. Water Transport. The northern and southern islands are reached by regular shipping services; harbors are numerous but facilities are few. 28

295. Storage Facilities. There are warehouses at the canning factories; the military bases have adequate facilities. 29

*296. Travel. Travel takes place by boat, on foot, or on horseback; post stations on Kunashiri and Etorofu provide travelers with shelter and horses. 29

3. ECONOMICS

31. FOOD PRODUCTION

311. Agriculture. The only agriculture consists of small-scale truck farming on the southern islands. 33

312. Hunting and Animal Husbandry. Animals are hunted primarily for their pelts; horses are bred in the southern islands. 33

313. Fishing. Fishing is by far the most important industry; it also supplies the population with a major part of their food. 34

314. Food Supplies. Stores of food are limited; except for fish, sources of food are few. 34

32. INDUSTRY

321. Handicrafts. The manufacture of chopsticks and bamboo objects are minor handicrafts. 35

*322. Textile and Clothing Manufacture. The Ainu made their garments of barkcloth and skins; no modern textile or clothing industry is reported. 35

323. Housing and Construction. The Ainu lived in semi-subterranean dwellings; most modern buildings are of wood, in Japanese style. 35

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324. Mine and Forest Production. Sulphur is the only mineral exploited to any appreciable extent; the timber resources are used primarily to supply local needs for fuel and housing materials. 35

325. Food Industries. Fishing and the salting and canning of fish is the principal industry; the chief products are salmon, cod, and crabs. 35

326. Miscellaneous Industries. Fur production has declined to very modest proportions; whaling is of some importance in the southern Kuriles. 38

327. Business and Industrial Organizations. The principal business concerns are the shipping companies (see 294) and several fishing companies. 38

33. LABOR

331. Labor Supply and Employment. Among the permanent residents there is a labor supply of eight or nine thousand men, who are ordinarily engaged in fishing; in the summer months there is a much larger supply of migratory labor from Japan. 40

332. Working Conditions. Long hours, inclement weather, and lack of facilities make working conditions difficult. 40

333. Wages and Other Incentives to Labor. Specific data on wages are not available. 40

334. Specialization. Outside of the skills associated with fishing and canning, there is little occupational specialization. 40

335. Labor Organizations. In some places fishermen have been organized into guilds. 40

34. PROPERTY AND EXCHANGE

341. Land Tenure. Considerable tracts of land are owned by the Government; land laws are presumably the same as in Japan. 41

*342. Movable and Incorporeal Property. Japanese property laws are presumably in force. 41

*343. Inheritance. The laws governing inheritance are probably those of Japan. 41

344. Domestic Commerce. There is no information on the local system of marketing and distribution; the products of forestry, agriculture, and stock raising are largely consumed in the islands. 41

345. Foreign Trade. Coal, oil, foodstuffs, and tins are imported from Japan; marine products are the principal exports; all commerce with foreign countries is carried on indirectly through Japan. 41

35. FINANCE

*351. Currency. The currency in circulation is that of Japan proper. 43

*352. Foreign Exchange. All foreign exchange transactions are handled in Japan. 43

*353. Banking and Credit. There is no information on banks and banking in the Kuriles. 43

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*354. Investments. The principal investments are those of the shipping and fishing companies (see 328). 43

*355. Stock and Commodity Exchanges. There appear to be no stock or commodity exchanges in the Kuriles. 43

*356. Public Finance. Information is not available on governmental revenues and expenditures in the Kuriles. 43

APPENDIX: INFORMATION ON SPECIFIC ISLANDS

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# 1. BASIC INFORMATION

## II. GEOGRAPHY

### 111. Location

Geographic Position. The Kurile Islands, known to the Japanese as Chishima (Thousand Islands), lie between 44° 45' and 50° 56' N. lat., and between 145° 25' and 156° 32' E. long. These islands are the most northern of the Japanese Archipelago and are close to the great circle route between the west coast of the United States and Japan. They stretch about 690 miles northeast to southwest between Hokkaido and the Kamchatka Peninsula.

Table of Distances. Shimushu, the most northern of the Kuriles, is seven miles from Kamchatka and is only 640 miles from Attu, the westernmost of the Aleutians. Sea distances on the great circle route in nautical miles from Dutch Harbor to the principal Kurile Islands are given below. Seattle is 1,706 nautical miles and San Francisco 2,053 nautical miles from Dutch Harbor.

| | | | |
|---|---|---|---|
| Shimushu | 1351 | Ketoi | 1585 |
| Paramushiru | 1369 | Shimushiru | 1600 |
| Onnekotan | 1439 | Uruppu | 1686 |
| Harumukotan | 1463 | Etorofu | 1770 |
| Shasukotan | 1481 | Shikotan | 1896 |
| Matsuwa | 1537 | Kunashiri | 1895 |

Time. The Kurile Islands lie west of the international date line. Sunday in the Aleutians is Monday in the Kuriles. The standard time is that of Japan, nine hours in advance of mean time at Greenwich.

Composition. In addition to many smaller islands, the Kuriles consist of 47 volcanic islands with at least 2.14 miles of coastline each. The Kuriles are generally divided into three groups, the Kamchatkan or Northern Kuriles, the Central Kuriles, and the Hokkaido or Southern Kuriles. The northern group lies between 50° and 51° N. lat., and includes all the islands north of Onnekotan. The central group extends from Etorofu Straits to 50° N. The southern group consists of the large islands of Shikotan, Kunashiri, and Etorofu. The following table lists the principal islands, along with important variant names:

Northern Kuriles

- Araido (Alaid, Oyakobakka, Tchatch-kotan)
- Paramushiru (Nouben-moshiri, Sesebou-moshiri, Oureshi)
- Shimushu (Shumshir, Shoumoushou, Shoumoutch)

Central Kuriles

- Shirinki
- Makanru (Makanroushir, Kokoumetra)
- Onnekotan (Nousa, Inao)
- Harumukotan (Kharimkotan)
- Chirinkotan
- Yekaruma (Ekarma)
- Shasukotan (Shiashkotan, Touki-Moshiri)
- Raikoke
- Matsuwa (Matoua, Matau)
- Rashuwa (Rashau, Rasawa)
- Ushishiru
- Ketoi
- Shimushiru (Shimushiri, Simushir)
- Burotan (Makanruru, Makanru)
- Chirihoi (Black Brothers)
- Uruppu (Urup, Companys)

Southern Kuriles

- Etorofu (Yetorup, Staten)
- Shikotan
- Kunashiri (Kounashir)

Area. The Kurile Islands have a land area of about 4,000 square miles and a total coastline of nearly 1,500 miles.

## 112. Climate

Meteorological Stations. The climate of the Kurile Islands is not known in detail since there is only one station, Shana, for which extensive statistics are published. Shana is on the west side of Etorofu Island. The Japanese also maintain weather stations on Matsuwa, Shimushiru, Shikotan, and Shimushu.

Temperature. The Kuriles have a marine climate, cold and damp. The mean annual temperature at Shana is 39.5° F. The warmest months are July and August; the coldest is February. The first frost in autumn comes early in September; the last frost in spring generally occurs in the middle of June. The following table summarizes the important information on temperature in Nemuro on Hokkaido, representative of the southern Kuriles; Shana on Etorofu, representative of the central Kuriles; and Petropavlovsk on the eastern side of Kamchatka, representative of the northern Kuriles. Appropriate modifications must be made to apply the Nemuro and Petropavlovsk figures to the southern and northern Kuriles. The southern islands are somewhat cooler than Nemuro and the northern ones are warmer than the Kamchatka station.

| Temperature conditions | Nemuro | Shana | Petropavlovsk |
|---|---|---|---|
| Mean annual temperature | 41.7°F. | 39.5°F. | 33.1°F. |
| Highest monthly average (August) | 63.0 | 60.5 | 54.5 |
| Lowest monthly average (February) | 22.2 | 18.8 | 13.6 |
| Annual range of temperature | 41.9 | 41.7 | 40.9 |
| Daily range in summer | 15.0 | 15.0 | 15.0 |
| Daily range in winter | 11.0 | 11.0 | 11.0 |
| Extreme high temperature | 90.0 (July) | 87.0 (July and August) | 81.0 (August) |
| Lowest temperature | -9.0 (January) | -12.0 (February and March) | -25.0 (February) |

Atmospheric Pressure. The mean atmospheric pressure at Shana is 759 millimeters, or 29.88 inches. The results of meteorological observations at Shana (1903-1931) are summarized (in millimeters) in the following table:

| Averages | Shana |
|---|---|
| Mean for entire period | 759.0 |
| " " January | 757.6 |
| " " February | 758.8 |
| " " March | 759.5 |
| " " April | 756.9 |
| " " May | 758.8 |
| " " June | 757.9 |
| " " July | 758.0 |
| " " August | 758.7 |
| " " September | 760.7 |
| " " October | 761.5 |
| " " November | 759.6 |
| " " December | 756.8 |

Humidity. Humidity in the Kurile Islands is relatively high, and shows considerable seasonal variation. The greatest humidity occurs in July and August; November and December are the least humid months. The following table gives the relative humidity, in percentages, from observations on Shana (1903-1931):

| Averages | Shana |
|---|---|
| Mean for entire period | 82 |
| " " January | 82 |
| " " February | 84 |
| " " March | 83 |
| " " April | 80 |
| " " May | 81 |
| " " June | 86 |
| " " July | 89 |
| " " August | 88 |
| " " September | 84 |

| Averages | Shana |
|---|---|
| Mean for October | 78 |
| " " November | 77 |
| " " December | 77 |

Precipitation. The mean annual precipitation recorded at Shana from 1903 to 1931 is 41 inches. The heavy precipitation, combined with a low evaporation rate caused by the relatively low temperatures, creates a constantly moist condition. The ground is wet throughout the year. Low winter temperatures are made more intense by the high humidity. Summers are cool, wet, foggy, and cloudy. Shana receives its greatest amount of precipitation from August to January. The reason for this is the position of Shana, which is located on the northwest coast of Etorofu, exposed to the northwest monsoon which picks up moisture over the Sea of Okhotsk. The normal precipitation maximum throughout the Kuriles occurs in summer. The central Kuriles have a greater annual precipitation than either the northern or the southern Kuriles.

Much of the precipitation in the Kurile Islands falls as snow. Snowfall begins between late September and late October. In November the weather is mostly overcast, and snow falls every fourth or fifth day. From December to March snowfalls are frequent, and, as a rule, the ground is well covered with snow from December to April. The snow reaches depths of several feet, and lies in valleys and on slopes facing northward until May. Lakes and ponds are frozen over and covered with ice from December to March. Communication between islands and between places on the same island is normally suspended in winter.

The following table summarizes the information on precipitation (in millimeters) from observations on Shana (1903-1931):

| Averages | Shana |
|---|---|
| Annual Mean over entire period | 1042 |
| Mean for January | 93 |
| " " February | 55 |
| " " March | 63 |
| " " April | 66 |
| " " May | 79 |
| " " June | 58 |
| " " July | 75 |
| " " August | 103 |
| " " September | 98 |
| " " October | 113 |
| " " November | 132 |
| " " December | 108 |

Cloudiness. Average cloudiness is high. It is 66 per cent at Nemuro, 78 per cent at Shana, and 60 per cent at Petropavlovsk. Over the period of years from 1903 to 1931 the average number of days per year during which it was cloudy for more than eight hours was 233, while the average number of days during which cloudiness prevailed for less than two hours was only 15. The cloud cover on Shana exceeds 70 per cent in every month of the year, and reaches 90 per cent in December and January. Elsewhere cloudiness reaches a maximum in summer.

Fog. The Kuriles are noted for the prevalence of very dense fogs. These are more frequent in the southern and northern Kuriles than they are in the central islands. Nemuro on Hokkaido has 85 foggy days a year on the average, Shana 46, and Petropavlovsk 67. Most fogs occur during the period from April to September. They are sometimes so dense as to make navigation impossible, and they have a bad reputation among fishermen.

Fogs in the Kurile Islands are of two types. Sometimes there are "dry" fogs, which extend to considerable heights and in calm weather lift 80 to 100 feet above the sea, leaving it perfectly clear below. The other type is a "wet" fog, dense and full of moisture, almost amounting to a drizzling rain. Fogs of this type often reach to a considerable height and are generally accompanied by a cloudy sky. At other times "wet" fogs occur in horizontal bands which often do not extend aloft more than 70 to 80 feet. Above this height, the sun is generally shining in a cloudless sky.

The distribution of fogs varies considerably according to the direction of the wind. There is nearly always a clear space on the lee side of an island. In the summer months, with light southerly and southeasterly winds prevailing, the northwest sides of the islands are clear. With light westerly, northwesterly, and northerly winds, the southeast coast is free from fog; with fresh breezes from these quarters the fog is blown out to sea. Fog in horizontal bands indicates clearing weather. Heavy cloud caps on the peaks of the mountains indicate the approach of bad weather.

Fog renders navigation difficult in the vicinity of the Kurile Islands. The dangers are minimized, however, by the deep water with which the islands are surrounded. In summer, large fields of kelp grow about all islands in water as deep as 90 feet and give warning that land is near. Other indications of land are the large flocks of birds, the smell of sulphur from volcanoes, the presence of tide rips, and the effect the islands have on a vessel's compass. It is reported that within half a mile of the shore in the vicinity of some of the volcanoes, especially at the northeast end of Etorofu, at the southeast end of Shimushiru, in and near Burotan Island, and in the vicinity of Chirihoi, compass variations are particularly noticeable.

Winds. During the summer there are generally light breezes, but strong winds prevail during the winter, especially in January and February. From October to April, westerly and northerly winds are frequent. Southerly winds predominate from May to September, with occasional westerly or easterly breezes. In the central Kuriles there are likely to be variable winds with occasional northeasterly or westerly gales in May. In June, July, and August, light southerly and southeasterly winds prevail. During September the winds become strong, blowing chiefly from a westerly direction. The following table summarizes the data on wind velocity (in meters per second) recorded at Shana from 1903 to 1931:

| Averages | Shana |
|---|---|
| Annual Mean over entire period | 6.2 |
| Mean for January | 8.8 |
| " " February | 7.3 |
| " " March | 6.4 |
| " " April | 5.7 |
| " " May | 5.3 |
| " " June | 4.2 |
| " " July | 3.8 |
| " " August | 3.9 |
| " " September | 4.7 |
| " " October | 6.5 |
| " " November | 8.6 |
| " " December | 9.3 |

Storms. Heavy gales occur most frequently during the winter, but they may occur at any time throughout the year. During the summer an abnormally high barometer for a few days will nearly always be followed by a steady fall, culminating in a gale with heavy rain from southeastward. During a heavy gale the wind generally blows strongest off the land.

## 113. Geology and Topography

Geological Structure. The Kurile Islands are all of volcanic formation. Although the Kuriles are probably the youngest of the Japanese volcanic arches, some of the islands, e.g., Kunashiri and Etorofu, are probably very old; they have volcanoes that show much vegetation, deep valleys, and little activity. The rocks found in these islands are of the calc-alkali type; andesites, basalt, and olivine basalt predominate. In addition there are various pyroclastic rocks, such as agglomerate and tiff. Quartz is absent or rare, although dacite and granite are found as pebbles in the coastal deposits.

Topography. There are two distinct types of islands, the round islands such as Alaid, Ketoi, and Rashuwa, crowned by a volcanic summit, and elongated islands, such as Kunashiri, Etorofu, Uruppu, Shimushiru, and Shasukotan, running in a northeasterly direction. The elongated islands appear to be agglomerations of round islands, joined together by deposit from volcanic eruptions.

In general, the Kurile Islands are high and rugged. Only the most northern of the group, Shimushu, is low, its elevations not exceeding 618 feet. Kunashiri, Etorofu, Paramushiro, and Shimushu have rounded surfaces, but the other islands have sharp peaks. There are steep slopes which fall to the water line in a high bluff. In the southern islands, cliff coasts are less frequent and the valleys are longer than in the islands to the north. The Pacific side of the islands is bluffy and less indented than the Okhotsk coast. Level stretches are found only on the longitudinal islands. Kunashiri, Etorofu, and Shikotan, for example, have extensive stretches of level ground. The round islands, on the other hand, are invariably precipitous and difficult of access.

Volcanic Activity. Many of the volcanoes in the Kurile chain are still active. The most significant recent volcanic disturbances include explosive eruptions in 1905 (Komagadake), 1906 (Nemodake), 1924 (Ketoi and Raikoke), 1929 (Komagadake), and 1933

(Harumkotan), the rise of a new lava dome on the top of Tarumaidake in 1909 and the renewed eruption thereof in 1917 and in 1933, and the formation of a new volcanic islet off the eastern side of Araido Island in 1933. Many other volcanoes still show signs of activity, although eruptions have not occurred in recent years. Earthquake shocks are frequent all along the Kurile chain. Numerous hot springs are found throughout the islands.

Drainage. Streams of any importance are found only on the longitudinal islands, and there they seldom exceed 25 miles in length. The most important are the Todorokigawa on Paramusniru, the Nishidaigawa on Uruppu, the Shibetorogawa on Etorofu, and the Onnebetsugawa on Kunashiri. Small streams are found on all of the islands. Valleys are generally short and narrow, the small streams often tumbling into the sea in a waterfall over a cliff.

Lakes are frequent, and a considerable number are reported to be of large size. Many of the extinct volcanic craters form deep bays which have relatively shallow openings to the sea. In some instances sand dunes block the entrance, resulting in the formation of large lagoon-like lakes. Such lakes are found especially in the southern islands. In the larger islands many of the river valleys contain numbers of small lakes separated from each other by extensive marshes. The more important lakes are found on Onekotan, Etorofu, Kunashiri, Paramushiru, Shimushu, and Uruppu.

## 114. Hydrography

Sources. Detailed hydrographic information is contained in "Asiatic Pilot," Volume II, Publication No. 123 of the United States Hydrographic Office, pages 64 to 113, and on Charts 5322 to 5328, and 5533 to 5535 of the United States Hydrographic Office. Since these sources are widely available, only a very general summary of the hydrographic data will be presented below.

Tides. The tides in the Kurile Islands are often irregular. Their rise and fall is ordinarily three and one-half to six feet. Currents rush through the various straits at varying speeds, sometimes as much as five knots, resulting in very heavy tide rips off the ends of the islands. These tide rips are usually worse about the time of a new or full moon and after easterly and northeasterly winds.

Currents. A cold current called the Oya Shiwo, flows southward along the eastern coast of Kamchatka and down the Pacific side of the Kuriles. Water temperatures in the Oya Shiwo are ordinarily from 35° to 36° F. Seaward from the Oya Shiwo is a warm current, the Kuro Shiwo, which flows northward. In summer this current may be as warm as 82° F. The Oya Shiwo is widest and strongest in winter. During the summer its speed is about one knot or a little less, but occasionally during northeasterly winds its velocity is nearly doubled.

Ice. Icefields begin to make their appearance off the northwest coasts of the Kuriles early in February. The ice is formed in the northern and northwestern parts of the Sea of Okhotsk, and, as it gets broken up, it is carried by currents and winds across that sea to the islands, where it often blocks the coasts and straits for many miles. The thickness of the floating ice usually varies from about 12 to 30 feet, the snow upon it adding considerably to its bulk. Local ice is also formed during the winter throughout the Kuriles. The ice ordinarily disappears by the middle of May, although sometimes it lingers into June.

## 12. RESOURCES

### 121. Water Supply

Natural Sources. There are streams on all the islands and fresh-water lakes on most of them. Many of the extinct craters fill with rain water and form excellent sources of drinking water. On most of the islands the water supply is adequate for large numbers of people.

Artificial Sources. No wells, tanks, or cisterns are reported for the Kurile Islands. A number of the fishing stations utilize nearby lakes as reservoirs and apparently pipe the water from the lakes to the site of their operations.

### 122. Soils

Nature of the Soil. The Kurile Islands are all of volcanic material. It is only in the valleys and on the lower slopes of the mountains that soil of any depth is found; the tops of the volcanoes are generally bare rock. In many places, the soil has a large admixture of clay. Along the coasts where cliffs are low there are rolling dunes of sand. Extensive layers of humus are found only in the valleys of the larger islands.

Fertility. The larger southern and northern islands afford the only really fertile land areas. Elsewhere the soil is relatively poor and shows little promise as cultivable land. However, more extensive agricultural development than has been attempted so far is possible in the Kuriles (see 311).

### 123. Minerals

Sulphur. Sulphur is the only mineral which is exploited to any appreciable extent, and even the production of this is not significant. There are extensive sulphur deposits on Kunashiri and Etorofu. Outcroppings of sulphur are also reported on many of the other islands.

Other Minerals. A survey of the Kuriles in 1938 disclosed the presence of various minerals in addition to sulphur. Gold and silver in limited amounts were reported for the northern islands of Shimushu, Paramushiru, and Uruppu. The gold deposits, however, were probably exhausted by the Russians in former years. Copper was found on the southern side of Uruppu, and iron ore was discovered on Kunashiri Island.

### 124. Flora

Land Plants. The southern islands of Kunashiri, Shikotan, Etorofu, and Uruppu are well wooded with pine, spruce, birch, willow, alder, cedar, and the silkworm mulberry. North of Uruppu the only trees to be found are on Ketoi, where there is a small patch of stunted fir on the northern side of the island, and in isolated, well-protected valleys on Paramushiru. On most of the islands, however, there is some scrub pine, alder, and occasionally willow. The largest trees are found on Kunashiri. On the lower slopes of Kunashiri there are found especially fine coniferous stands, including forests of spruce. The forests of Etorofu are dominated by deciduous trees such as oak, beech, maple, sallow, and mountain ash. On the three northernmost islands mountain black alder is found.

The lower slopes of the hills are usually covered with a thick carpet of mosses and grasses. On the middle slopes there are low-growing plants and mosses, while the higher elevations are generally barren. On the sand dunes coarse grasses, a kind of wild pea, and sweet-smelling roses grow above the high water mark. The flat ground in the valleys is usually swampy, and overgrown with rushes and coarse grasses. There are also many wild flowers, including dandelions, terrestrial orchids, and geraniums. Ferns, sorrel, wild celery, and a small wild onion are common. On some of the mountains, e.g., on the island of Shikotan, the Kurile edelweiss grows luxuriantly. Several kinds of berries, strawberries and salmonberries in particular, are common on many of the islands.

On the southern islands there is a dense growth of heavy bamboo grass (sasa), which often reaches six feet and more in height. Where this grass grows, no other vegetation seems able to survive, and its thickets are almost impenetrable. A spotted and somewhat rare bamboo, which has some commercial importance because of its peculiar markings, grows

on Shikotan. In the gullies and around the bases of the cliffs and hills which slope toward the beaches, dense thickets of dwarf pine are often encountered.

Marine Plants. Probably in no part of the world is there a greater luxuriance of seaweed growth than occurs in the waters of the Kurile Islands. Vast beds of kelp grow from early in April, attaining their full growth in July, along the coasts of most of the islands. The kelp grows in water as deep as 90 feet and has plants sometimes measuring 150 feet in length. Some of the islands are surrounded by a nearly unbroken belt of kelp half a mile in width. By the end of August much of the kelp has been broken and large quantities are either driven out to sea or thrown up on the beaches.

Sea grass (Fucus esculentus) is plentiful; it provides food for the seals and is used by the Japanese as an ingredient of soups. The waters are extraordinarily rich in marine algae, which are dried and used as food by both the Japanese and Chinese. The larger algae thrive in depths of up to 160 feet and more, but best of all at a depth of less than 28 feet near the coast. The following algae are of the most importance for the Kuriles: "Kombu" (Laminaria alaria), "Nori" (Gloipeltis), and "Tengusa" (Gelidium).

## 125. Fauna

Land Mammals. Both the black and the brown bear were formerly numerous in the Kuriles. As late as 1931 considerable numbers of brown bear were observed on Kunashiri and Etorofu. Frequently people are badly injured by bears; at Tomari on Kunashiri an Ainu was nearly killed by a brown bear in 1931. Formerly there were wolves on Kunashiri and Etorofu, but they are rare today. Red and black foxes are plentiful on most of the larger islands. The winter skins of these animals are remarkably fine, and there is a large proportion of cross and silver grey pelts. The land otter and martin are found only on Kunashiri and Etorofu. Squirrels and rats are common on the southern islands; lemmings are found on Paramushiru, Onekotan, and Shimushu.

Reptiles. No snakes are reported for the Kurile Islands.

Insects. The islands are visited with innumerable swarms of mosquitoes. These apparently breed in the swamps of the larger islands and along the rocky coasts in shallow stagnant pools of water. During calm weather in the summer months it is necessary to wear a blouse and veil as protection against their bites. Other common pests are sandflies, a small green and a small black fly, gadflies, fleas, ants, lice, and ticks. A caterpillar (Dendrolimus abbolineacus Mats.) has done considerable damage to coniferous trees in the Kuriles. Beetles, spiders, bees, and gnats are reported for most of the islands.

Birds. Land birds are rare to the northward of Uruppu; wagtails, flycatchers, ravens, peregrine falcons, and eagles are the most common. Sea and shore birds of many varieties visit or breed on the islands. They are most plentiful on the smaller islands where there are no foxes. Several varieties of puffin, auk, guillemot, duck, goose, gull, sandpiper, and snipe are found throughout the Kuriles.

Fish. Fishing is by far the most important industry of the Kuriles (see 325). Fish are most plentiful in the waters off the southern and northern Kuriles. The central Kuriles are practically without fish; the water there is deep and there is little food for the fish. Salmon are plentiful, and salmon trout are found in the streams and lakes of the larger islands. Herring are very numerous at certain seasons, whereas cod, turbot, halibut, and several kinds of rockfish are to be found all the year around. Sharks are not common.

Shellfish. Crustacea and mollusks abound along the coasts; the most important are crabs, mussels, and scallops.

Marine Mammals. Marine mammals include the sea otter, fur seal, sea lion, porpoise, and whale. A black sea lion is found in limited numbers. Killer whales are common.

## *126. Major Facilities

## 13. HISTORY

### 131. Early Discovery and Contacts

Discovery and Exploration. European contact with the Kurile Islands came first in 1643, when Captain Maerten Gerrits Vries in his ship 'Castricum' visited Hokkaido and then continued farther to the east. After sighting the mountains of Kunashiri, which he assumed to be a peninsula of Hokkaido, he reached Etorofu, and finally sighted the southern point of Uruppu. He took ceremonial possession of the islands for his masters and outfitters, the East Indian Company.

In 1672, a storm-driven Japanese ship reached Etorofu and Kunashiri. The next visitors to the islands were the Russians, coming from the north. In 1711, Kozyrevskoi and Antsiferov undertook an expedition to two of the northern Kuriles, establishing permanent contact. Captain Spanberg, as a member of the Bering expedition, visited the Kuriles in 1779, but only sighted Paramushiru and Shimushu. The first accurate information about the southern islands was probably brought to Japan by Migami Tokunai in 1786. In 1787, La Perouse cruised between the islands of Uruppu and Shimushiru. Broughton visited some of the northern islands in 1796. The Russian fleet, under Krusenstern, explored the Kuriles in 1805, bringing the early period of discovery to a close.

Contacts with Natives. The Russians early established contact with the natives of the northern islands. During the eighteenth century the northern Ainu became familiar with the Russian language, adopted the clothing of the Russians, and took advantage of their more advanced technology. As early as 1747, twenty per cent of the natives had been baptized and were members of the Greek Orthodox Church. The Russian-American Company traded with the Ainu, and imported a number of Aleuts as hunters of sea animals.

Somewhat later, the Japanese began to establish contact with the Hokkaido Ainu who inhabited the southern islands. The natives were employed by the Japanese as fishers and hunters and thus became familiar with the Japanese language and customs. It was not, however, until 1875, when the northern islands became part of the Japanese Empire, that the Japanese had any extensive contact with the natives of the islands north of Uruppu.

### 132. Political History

Period of Russian Control (prior to 1875). By the end of the eighteenth century the northern islands were well under the political control of Russia. Tribute in the form of skins was collected by the Russian Government from the Ainu of the northern islands. At the same time the Japanese had extended their sphere of influence up into Kunashiri and Etorofu. The southern islands were regarded as possessions of the lord of what is now Hokkaido. In 1806 and 1807 sharp conflict broke out over the control of the islands, and the Russians seized Etorofu and Saghalin. The dispute was not settled until 1854, when by agreement the boundary line between the Russian and Japanese sections of the Kuriles was fixed at the Etorofu Straits. From then until 1875 the islands south of Uruppu belonged to Japan, while Uruppu and all the islands to the north were held by Russia.

Period of Japanese Control. In 1875 the Russian islands were ceded to Japan in exchange for a waiver of Japanese claims to the southern part of Saghalin. When the Japanese took control of the northern islands, the inhabitants were free to move to Russia or to remain and become Japanese subjects. The Aleuts and Russians returned home. Most of the Ainu population remained.

For some time after the Kuriles passed into the hands of the Japanese, they were jealously guarded. Permission to hunt seals and other sea animals was rarely granted to foreigners. The islands were poorly charted, and in the fog-bound waters many vessels were shipwrecked. Ships that were forced to put in for shelter were confiscated by the Japanese.

In 1884 the Japanese Government transported all the Ainu living in the Kuriles to Shikotan. Their dogs were killed and their boats left behind. A village was laid out and built at Shakotan, a small bay on the north coast of Shikotan Island. Here the Ainu were made to work and encouraged to cultivate plots of land. Cattle and sheep were imported for them to tend. A doctor and teacher were added to the community. The Ainu natives were strictly supervised by the Japanese officials. According to all reports the natives had great fear of their Japanese supervisors, and soon lost all semblance of being an independent people. When Captain Snow, a fur hunter who has given us the most detailed description of the Kuriles, visited the island in 1891 he was besought by the Kurile Ainu to be taken back to Paramushiru. The Japanese Government allowed them to return, but only for a short time, and then brought them back again to Shikotan. Since their removal to

Shikotan the Ainu natives have rapidly decreased in numbers until today they form an extremely insignificant element in the population (see 143).

In 1893 the attempt was made to settle the northern islands with Japanese. A society of former members of the army and navy, headed by Lieutenant Gunji, established a colony on Shimushu, but the community did not survive. A great many died during the winter, and the remainder finally returned to Japan. More recent attempts, however, have met with somewhat greater success.

## 133. Economic Development

Period of Russian Control (prior to 1875). By the end of the eighteenth century the Russian-American Company had established a trading station on Uruppu. The northern islands soon became an important area for hunting sea animals. The Russian-American Company carried on a thriving business in the islands, trading guns, powder, lead, caps, tobacco, and knives to the natives in exchange for valuable skins. The company brought a number of Aleuts to the islands, and employed them as hunters. In the meantime the Japanese employed the natives of the southern islands as fishers and hunters. The most extensive economic development during this period, however, took place in the north in the islands under Russian control.

Period of Japanese Control. For some time after the Kuriles passed into the hands of the Japanese there was little economic development. The trading vessels of other countries were forbidden to visit the islands, and little contact with the northern islands was maintained by the Japanese. Except for a few vessels that were able to run the risks of hunting in the dangerous and uncharted waters, the northern islands were practically neglected for a number of years. Such exploitation as took place was mostly done in secret by foreign ships. The southern islands received more attention from the Japanese, and there the economic development has been more pronounced. Some attempts were made to exploit the sulphur deposits of the southern islands, but for the most part they were unprofitable. The Department of Agriculture and Forestry of the Japanese Government encouraged the exploitation of the timber resources and attempted to develop the agricultural potentialities of the southern Kuriles, but met with only fair success. The raising of horses, cattle, and foxes showed promise for a few years, but livestock raising has steadily declined in recent years. The greatest economic development has been in the fishing industry. Canneries and hatcheries were established, and fishing steadily grew in importance until today it is the outstanding industry of the Kurile Islands (see 325).

## 134. Missions

Missionary Activity. During the period of Russian control the natives of the northern islands were exposed to the missionary activities of the Greek Orthodox Church. A Russian church community was established at Broughton Bay on Shimushu, supplied from Kamchatka. In this village a church was built of pine boards brought from America. Every three years a priest toured the remainder of the northern islands. By the time the Russians relinquished control to the Japanese, nearly all the northern Ainu had become members of the Greek Orthodox Church.

When the northern Ainu were moved to Shikotan, they maintained their affiliation with Christianity and built a church in their new community. The Hokkaido Ainu, however, had by this time for the most part adopted Japanese customs and were either Buddhists or Shintoists. The extent to which the Japanese carried on missionary activities among the natives in their new community is not reported.

# 14. PEOPLE

## 141. Racial Characteristics

Ainu. The aboriginal inhabitants of the Kuriles, as of Hokkaido and southern Saghalin, are the Ainu, a primitive race with Caucasian rather than Mongolian affinities. The Ainu of the southern islands are practically identical with those of Hokkaido. Those of the northern islands, the Kurile Ainu proper, reveal a number of cultural differences but resemble the southern or Hokkaido Ainu in physical features. Both groups are characterized by long and thick black hair, a round face with brown eyes, full cheeks, and a large mouth. Their skin color is light, though tanned, and body hair is plentiful. Their extreme hairiness and their relative lack of Mongoloid traits, such as the epicanthic eyefold, are their most outstanding physical characteristics.

The northern Ainu lived in constant contact with the Kamchadales, and considerable intermixture took place. Formerly good fighters, they have lost all idea of resistance or independence. Living for many years practically as serfs under Japanese domination, they have become docile, submissive, and spiritless.

Japanese. The Japanese of the Kuriles do not differ in racial characteristics from the Japanese of Hokkaido.

## 142. Language

Japanese. The predominant language of the Kurile Islands is Japanese.

Other Languages. Although the native Ainu still speak their own language, they have all learned Japanese. The northern Ainu formerly spoke Russian, and there may be a few alive today who can still use the Russian language. Many of the fishermen now operating in the Kuriles also probably have some knowledge of Russian, formerly gained while working in and around Kamchatka. There are no middle schools in the Kuriles where foreign languages are taught, and it is unlikely that many of the inhabitants can converse in English.

## 143. Population

Total Population. The Japanese official estimates of the total population in the Kuriles were 14,793 in 1925, 15,119 in 1930, 18,714 in 1935, and 17,549 in 1940. In normal years the population of the Kuriles is increased during the summer by twenty to thirty thousand migrants, who work as fishermen, whalers, and canners. The majority of these go to the salmon waters of the north, where they remain from early May through September. The time of arrival and departure depends upon weather conditions, the success of the catch, and the type of fishing done.

Racial Distribution. The bulk of the 17,000 inhabitants are Japanese, less than 400 being Ainu. When the Japanese first visited the Kuriles, the Hokkaido Ainu were living in the three southernmost islands and as late as 1875 were still the most numerous group. Since 1884 they have been rapidly diminishing. In 1928 some three hundred Hokkaido Ainu lived on Shikotan, but many had intermarried with Japanese and adopted Japanese ways. Ainu are reported to be among the residents on other islands in the southern group. But, for the most part, these are Japanese-Ainu half-castes who have little to do with the other natives. The Kurile Ainu were never numerous and are now practically extinct. When transported to Shikotan, the Kurile Ainu numbered 97, of whom 45 were men and 52 women. In 1930 only 30 survivors were reported; in 1931 the number had decreased to less than 20.

In 1930 several Norwegian whaling experts and their families were employed by the Japanese whaling companies in the Kuriles and perhaps are still resident there. In the past, Chinese peddlers occasionally visited the islands during the summer.

Distribution by Locality. The southern Kuriles support the greater proportion of the population. There is another concentration of inhabitants in the northern islands. The central Kuriles are very sparsely populated. The following table shows the distribution of population by counties as officially reported by the Japanese:

| Island | County | 1925 | 1930 | 1935 | 1940 |
|---|---|---|---|---|---|
| Kunashiri | Tomari | 5,552 | 4,739 | 5,644 | 5,595 |
| " | Ruyobetsu | 2,700 | 2,647 | 2,903 | 3,401 |
| Shikotan | Shikotan | 857 | 911 | 1,177 | 1,499 |

| Island | County | 1925 | 1930 | 1935 | 1940 |
|---|---|---|---|---|---|
| Etorofu | Shana | 1,603 | 2,308 | 2,073 | 1,462 |
| " | Rubetsu | 2,350 | 2,542 | 2,554 | 2,841 |
| " | Shibetoro | 1,231 | 1,513 | 1,482 | 881 |
| Uruppu | Uruppu | 20 | 13 | 29 | |
| Shimushiru | Shimushiru | 30 | 22 | 32 | |
| Shimushu | Shimushu | 450 | 424 | 2,820 | 1,805 |

The following villages are of some commercial, shipping, or administrative importance:

| Settlement | Township or County | Island |
|---|---|---|
| Tomari | Tomari | Kunashiri |
| Seseki | " | " |
| Furukamappu | " | " |
| Tofutsu | " | " |
| Bettoga | " | " |
| Ruyobetsu | Ruyobetsu | " |
| Uennai | " | " |
| Shiranukatomari | " | " |
| Rubetsu | Rubetsu | Etorofu |
| Naibo | " | " |
| Tannemoe | " | " |
| Uembetsu (Tennei) | " | " |
| Toshimoe | " | " |
| Shana | Shana | " |
| Bettobu | " | " |
| Shibetoro | Shibetoro | " |
| Kataoka | Shimushu | Shimushu |

The extreme southern section of the Kuriles, i.e., Tomari township on Kunashiri Island, has the greatest density of population. Following that, the concentration would appear to be heaviest in the neighborhood of the village of Shana, on Etorofu Island.

Distribution by Sex. There are nearly twice as many men as there are women in the Kuriles. In 1940 the Japanese reported 11,057 males as against 6,492 females for the entire Kurile Islands. However, the ratio between the sexes varies for the island groups. In the southern islands, the sex ratio is fairly well balanced, but in the central and northern islands the number of men far exceeds that of women. By far the greater number of permanent settlements are in the southern islands.

Distribution by Age. No figures are available on the age distribution in the Kurile Islands. Probably the southern islands are alone in supporting a population with a normal distribution by age. The central and northern Kuriles most probably have an adult population.

*144. Vital Statistics

*145. Personalities

## 15. CUSTOMS

### 151. Clothing and Ornamentation

Native Clothing. Ainu men and women formerly wore an ankle-length coat or wrapper of bark cloth with wide sleeves and embroidered designs held in at the waist with a wide girdle. In the winter they wore a short sleeveless skin tunic over the coat. The women, in cold weather, wore an undergarment of skin, today of cotton cloth. Both sexes formerly wore tailored skin trousers. They wore leather boots stuffed with straw in the winter, and went barefoot in summer. Today the majority of the few remaining Ainu have modified their habits of dress to conform more closely to Japanese custom.

Japanese Clothing. Although the Japanese may have modified their clothing somewhat in adjustment to the climatic conditions of the Kuriles, there is no information available as to what changes have taken place.

### 152. Life Routine

Annual Cycle. Most of the fishing, which is the major occupation of the inhabitants, is done in the summer. From April to November the Kurile Islands are alive with activity; during the winter a slight amount of hunting takes place, but, for the most part, the inhabitants are relatively idle and are cut off from communication with the outside world.

Daily Routine. During the summer the fishermen rise early and retire late; all the daylight hours are spent in fishing. They rise between 2 and 3 A.M. and fish until dark. When fish are being caught in large quantities, they also work at night. In bad weather they work on shore. Throughout the year in the permanent settlements the children go to school, and the women occupy themselves with housekeeping. In the winter the men perform minor tasks, eat, sleep, and spend much of their time conversing.

### 153. Sex and Marriage Customs

Ainu. The native Ainu enjoyed complete freedom in sexual relations before marriage, and marriages frequently grew out of temporary or trial unions. In former times marriage usually took place between members of the same village and hence commonly between relatives. There was a simple marriage ceremony marked by an exchange of presents. Often men took a second or third wife. Divorce was easy, the sons remaining with the father, the girls with the mother. These customs have doubtless been modified to a considerable extent through Japanese contact.

Japanese. As far as can be ascertained, Japanese customs of sex and marriage do not differ in the Kuriles from those prevailing in Japan proper.

### 154. Funeral Practices and Religion

Ainu. In former times the Ainu practiced earth burial. Mourning was fairly elaborate and marked by a funeral repast. The Ainu believed that each person has a soul which survives after death, returning from time to time to help or injure the living. Animals, plants, and even inanimate objects were also believed to have souls. The most important supernatural beings, however, were spirits, some male and some female, which were thought to own all natural objects. Of these spirits the most revered was the goddess of fire. These native practices and concepts probably have not survived, in the Kuriles, under the constant pressure from the Japanese. The Kurile Ainu were formerly nominal Christians and members of the Russian Orthodox Church (see 134).

Japanese. On the three southern islands of Kunashiri, Etorofu, and Shikotan there are some dozen Buddhist temples, all of them affiliated with either the Soto branch of the Zen sect or with one of the branches of the Shin sect. On Kunashiri there are a half dozen or more Shinto shrines. Presumably the Japanese Buddhists and Shintoists in the Kuriles do not differ appreciably in their ritual practices from the inhabitants of Japan proper.

### *155. Art and Recreation

*156. Native Warfare

*157. Attitudes and Values

*158. Etiquette

*159. Conduct Considered Especially Offensive

## 16. ORGANIZED GROUPS

*161. Family and Kinship

*162. Clans

*163. Towns and Villages

*164. Social Classes

*165. Minorities

*166. Associations

# 2. ADMINISTRATION AND PUBLIC FACILITIES

## 21. GOVERNMENT

### *211. Native Political Institutions

### 212. Colonial Policy

Japanese Policy. The Kuriles do not have the status of a colony. The islands fall within the prefecture of Hokkaido. Nevertheless they share many characteristics in common with the Japanese colonial possessions. The Kurile Islands lie on the outskirts of the Japanese Empire, potentialities are undeveloped, and they are sparsely populated.

Toward the Kuriles the Japanese Government has maintained a consistent policy. The islands are regarded as an important strategic and economic asset to the empire. Consequently an attempt has been made to develop the economic potentialities of the Kuriles and to colonize the islands with Japanese. Under government supervision the fishing industry has expanded and prospered, other industrial ventures have been attempted, and the Japanese population of the islands has gradually increased.

### 213. Central Administrative Organization

Hokkaido Prefectural Government. For governmental purposes the Kuriles are treated as a part of Japan proper. They fall under the jurisdiction of the Hokkaido prefecture, the government of which is the central administrative unit for the Kurile Islands. The Hokkaido prefecture is administered by a Governor, who is directly controlled by the Minister of Home Affairs. The Governor's function and duties are similar in most respects to those of any prefectural governor. In addition, however, since there is no national forestry law applying to the district, the administration of forests falls technically under his jurisdiction. Moreover, he is charged with the responsibility of protecting the Hokkaido Ainu. The Hokkaido administration consists of the five divisions of Home Affairs, Education, Civil Engineering, Colonization, and Police. The organization and rights of the Hokkaido Assembly and Council are essentially the same as those of similar bodies in other prefectures.

### 214. District Administrative Organization

Nemuro Branch Bureau. Unlike the other prefectures of Japan, the Hokkaido prefecture is subdivided into branches. The Kuriles lie within the jurisdiction of the Nemuro branch of the Hokkaido administration, which includes a portion of northeastern Hokkaido as well. The central office for this branch is in the town of Nemuro, just across the straits from Kunashiri.

Department of Agriculture and Forestry. The Nemuro branch of the Hokkaido prefectural government has sole jurisdiction only over the southern Kuriles. Supervisory powers over the central Kuriles were "loaned" to the Department of Agriculture and Forestry in 1916 for a ten-year term. After the expiration of this term, control was not returned. The area has been declared a game preserve for sea otter, fox, and seal, and entrance is permitted only to patrol ships of the Department. Exceptions seem to be made during the summer, in the case of the island of Uruppu, since fishing colonies have been reported there.

Although the northern islands fall technically under the jurisdiction of the Nemuro branch office, the Department of Agriculture and Forestry seems to direct their administration in actual practice. Neither here nor in the central section is there any form of local government.

### 215. Local Government

Counties. Eight of the thirteen counties which come under the administration of the Nemuro Branch of the Hokkaido prefectural government lie in the Kurile area. These counties are as follows: Kunashiri, Shikotan, Shana, Rubetsu, Shibetoro, Uruppu, Shimushiru, and Shimushu. Like corresponding units in Japan proper the counties are divided into municipalities (townships in the Kuriles).

Townships. Although all the Kurile counties theoretically consist of townships, organized local governments are found only in the three southernmost islands. The town-

ship administration consists of an assembly or council, elected by the people, and a township head selected by the assembly with the approval of the prefectural governor. The township head directs the affairs of public health, statistics, finance, and education in the area under his control. In this capacity he is supervised by the prefectural governor and advised by the assembly. The headmen of the townships in the three southern islands and the number of village councilmen, for the year 1940, were reported to be as follows:

| Township | Name of Township Head | Number of Township Councilmen |
|---|---|---|
| Tomari | SAWADA Giichiro | 18 |
| Kuyobetsu | SHIMAZAKI Kyuei | 12 |
| Shikotan | TAKEDA Kiyoshi | 8 |
| Shana | TAKEDA Gengoro | 12 |
| Rubetsu | SAWADA Shonosuke | 12 |
| Shibetoro | OMORI Teruyoshi | 8 |

## 216. Civil Rights

Ainu. The Ainu form an alien group, under separate Japanese administration, and do not possess the rights of citizenship. Under Japanese law they are protected from economic exploitation, but in actuality the Ainu in the Kuriles have been treated as little better than serfs by the Japanese officials charged with their supervision.

Japanese. According to Japanese law every male inhabitant of and over 25 years of age who has resided for a minimum period of two years in the same municipality is a citizen of the same and has the right to vote or to be elected and, at the same time, has the duty of accepting any honorary post of service to which he may be elected. Presumably these regulations apply to the townships of the Kurile Islands.

## 217. Political Factions and Movements

Dissident Elements. There is no evidence of the existence of any significant political factions or movements in the Kurile Islands. The Ainu have lived so long under Japanese control, and their numbers are so few, that whatever dissatisfaction they may feel probably lacks any political expression.

## 22. LAW AND JUSTICE

*221. Native Legal Institutions

*222. Crime Statistics

223. Police Organization

Police Stations. The two police stations of the Kuriles are situated at Tomari and Shana. The number of officials assigned to them is not known, but it is likely that few are needed to police the settlements of the southern islands.

Control of Hunting and Fishing. In the central areas, police duties seem to be discharged by members of the Department of Agriculture and Forestry coast patrol, which protects the sea otter and fur seal rookeries. During the summer fishing season, policemen under the authority of the Nemuro branch office are delegated to the northern region. According to a 1935 report, there were four policemen in all, stationed respectively at Kataoka on Shimushu, and at Murakami Bay, Suribachi Bay, and Kakumabetsu Bay on Paramushiru. The boats needed for inspection were lacking, and the duties of regulating the fishing industry were assumed by the vessels of the Department of Agriculture and Forestry and those used by the Hokkaido prefecture for fisheries control.

*224. Law Enforcement

*225. Civil and Criminal Law

226. Judicial Organization

Courts of Justice. For legal matters the Kuriles are under the jurisdiction of the Nemuro district court, which has branch offices at Tomari, Rubetsu, and Shana.

Arbitration. In the remoter regions government officials of any kind probably serve as arbitrators whenever disputes arise, since this is the usual practice in Japan.

*227. Court Procedure

*228. Offenses and Sanctions

*229. Records

## 23. PUBLIC SAFETY

### 231. Fire Prevention and Control

Prevalence of Fires. No information is available on the prevalence and seriousness of fires in the Kuriles. Owing to the high humidity and frequent occurrence of fogs, fires of a serious nature are probably very rare, with the exception of heavily forested areas.

Fire Prevention. Tomari on Kunashiri and Shana on Etorofu have become the centers of forest-fire prevention guilds, numbering respectively 16 guilds with 1,522 members, and 10 guilds with 622 members.

### *232. Emergencies

### *233. Defense Organization

## 24. PUBLIC WELFARE

### 241. Standard of Living

Natives. The Ainu settlements on Shikotan have a somewhat lower standard of living than do the Japanese settlements on the southern islands. It is true that the natives have opportunities for education that formerly did not exist, and it is reported that their housing conditions have been improved, but it is also clear that their poverty is great.

Japanese. The Japanese residents of the southern districts maintain a standard of living which compares favorably with persons of comparable occupational status in Japan. Standards are somewhat lower for the canners and fishermen living in the northern areas, and the migrant fishermen of the northern waters are obliged to endure severe hardship.

*242. Poverty and Dependency

*243. Private Relief

*244. Welfare Agencies

*245. Social Insurance

*246. Conservation

## 25. HEALTH AND SANITATION

### 251. Diseases and Dietary Deficiencies

Prevalent Diseases. No data are available concerning the prevalence of diseases among the inhabitants of the Kuriles. It is known that syphilis was formerly introduced among the Ainu, and it is probably still found among them. Those diseases which may be encountered include the respiratory diseases, especially pneumonia and bronchitis; tuberculosis; the enteric diseases (common diarrhea, typhoid and paratyphoid fevers, and bacillary dysentery); and nutritional deficiency diseases.

*252. Native Medicine

*253. Government Medical Services

*254. Private Medical Practice

*255. Control of Communicable Diseases

*256. Disposal of Sewage and Waste

*257. Regulation of Food and Water

*258. Regulation of Drugs and Alcohol

## 26. EDUCATION AND PROPAGANDA

### *261. Family Training

### 262. Educational System

Public Schools. In 1936 fifteen ordinary elementary schools and five higher elementary schools were functioning on Shikotan, Kunashiri, and Etorofu Islands, employing 40 teachers. The total annual outlay for education of the various townships on these islands in 1934 was $15,737 (U. S.). The curriculum of the schools is presumably the same as that in the schools of Japan proper.

No reference has been found to schools north of Etorofu.

### *263. Propaganda and Public Relations

### *264. Censorship

## 27. COMMUNICATIONS

### 271. Postal Service

Post Offices. Kunashiri and Etorofu Islands have at least seven post offices. A post office was reported in 1934 to be open from May to November on the island of Shikotan; during December and January an agent of the Nemuro Post Office visited Shakotan once a month. In the rest of the islands the only postal service reported has been a branch of the Hakodate Post Office operating at Suribachi Bay on Paramushira. This is open daily during the summer season, closing in September.

### 272. Telephone, Telegraph, and Cable

Telephone. According to the Department of Communications, public telephone service was available in 1940 at probably all of the seven post offices distributed among the various coastal settlements of Kunashiri and Etorofu Islands. Telephone services have been opened in offices of some of the large companies.

Telegraph. There are at least four telegraph offices for public use on Etorofu Island, and not less than two on Kunashiri.

Cables. A cable line has been laid from Nemuro on Hokkaido to Kunashiri Island, where it lands at the tip of Keramoi Point east of Tomari. Another cable connects Kunashiri on Shiranuka Bay with Etorofu Island at Kushibetsu on Tannemoe Bay.

### 273. Radio

Radio Stations. In the absence of other means of communication there has been a considerable multiplication of radio stations in the northernmost islands. With the exception of two, one on Shikotan and one on Etorofu, all the radio stations are located on the northern islands of Shimushu, Paramushiru, and Araido. Until 1941 they generally commenced sending in April or May of each year, and closed for the winter sometime between September and November. During the winter months the nearest operating radio station appears to be that at Ochiishi on Hokkaido, just south of Nemuro.

Most of the radio stations in the northern Kuriles are operated by the government. The concession for privately operated stations is occasionally transferred from one fishing depot to another in the same vicinity.

Receiving Sets. It is reported that at the end of 1939 there were 114 radio receiving sets registered in the Kuriles.

### *274. Motion Pictures

### *275. Newspapers and Periodicals

## 28. PUBLIC UTILITIES

*281. Water System

*282. Sewerage System

*283. Gas Works

*284. Electric Light and Power Facilities

285. Public Buildings, Parks, and Improvements

Schools. A total of 20 school houses were reported in 1936 for the islands of Shikotan, Kunashiri, and Etorofu.

Hospitals. There is one hospital building at Kubetsu on Etorofu.

Government Buildings. There are government offices and a district court building on Etorofu. Meteorological stations are found on Matsuwa, Shimushiru, Shikotan, Etorofu, and Shimushu.

Parks. No parks are reported for the Kurile Islands.

## 29. TRANSPORTATION

### 291. Road Transport

Roads. There are good roads on Shikotan, Kunashiri, Etorofu, Uruppu, Paramushiru, and Shimushu. For details see Appendix.

Vehicles. Previous to 1940 traveling was done on horseback; baggage was carried by pack horses. In winter, sleds were also used. No reference has been found to the number of vehicles at present in use in the Kurile Islands.

### *292. Rail Transport

### 293. Air Transport

Commercial Aviation. There is no indication of any development of commercial aviation in the Kuriles. The inhabited islands being extremely rugged, the development of flying fields is difficult. Moreover, the foggy conditions prevalent throughout the summer and the ice packs in the winter hamper the operation of seaplanes. However, the meteorological observatory at Suribachi Bay on Paramushiru, in combination with that at Shana on Etorofu and the radio stations on the northernmost and southernmost islands, would offer some assistance to aviation, as would the already established military installations.

### 294. Water Transport

Shipping. There are three general routes of shipping which connect Hokkaido and the Kuriles: (1) the Kunashiri and Shikotan route, i.e., to islands adjacent to Hokkaido; (2) the Etorofu route; (3) the northern Kuriles route. The first two of these carry shipping and mail between Hokkaido and the southernmost islands, while the last connects Hokkaido with the northernmost group. The central islands have no regular shipping service but are periodically visited by the observation ships of the Department of Agriculture and Forestry.

Ships which follow the first two routes are generally small vessels of 10 to 40 tons. The ships which travel the northern route are of 700 to 1,500 tons. Motor launches have been used in increasing numbers.

The accompanying table outlines the shipping services to the Kuriles reported to be in effect before the war.

Shipping Services to the Kuriles

| Route | Company | Seasons | Trips | Stops |
|---|---|---|---|---|
| (1) Kunashiri-Shikotan | | | | |
| Nemuro-Kinkai Line | Nemuro Kisen K.K. | Apr.-Nov. | 21 | Nemuro--Shiranukatomari--Tomari--Shibetoro--Shikotan |
| Nemuro-Shikotan Line (Kunashiri) | " " " | Apr.-Dec. | 27 | Tofutsu--Furukamappu-Uennai--Ruyobetsu (Chinomiji)--Rebun--Rurui--Seseki--Okappu--Atoiya--Sokoboi--Yuwarinbetsu |
| Nemuro-Shibetoro (Kunashiri) | ? | May -Nov. | 15 | Shibetoro--Chibukarabetsu--Nikishiro |
| Nemuro-Tomari | ? | Apr.-Nov. | 37 | Tomari |
| (2) Etorofu Lines | | | | |
| Hakodate-Shibetoro | Kinshin Shosen K.K. | Apr.-Dec. | 43 | Nemuro--Shana--Naibo--Rubetsu--Shiranukatomari--Shamambe--Bettobu--Shibetoro--Moyoro--Kushiro--Ruyobetsu (Chinomiji)--Arimoe--Naiko |
| Hakodate-Toshimoe (SE coast of Etorofu) | " " " | Apr.-Mar. | 19 | Toshimoe-Shikotan |

Shipping Services to the Kuriles (cont'd)

| Route | Company | Seasons | Trips | Stops |
|---|---|---|---|---|
| Nemuro-Shana (NW coast of Etorofu) | Kamon Kaisen Sohi K.K. | Apr.-Dec. | 23 | Shana--Rubetsu--Naibo--Naioku--Shamambe--Bettobu |
| Nemuro-Toshimoe | " " " | ? | ? | Toshimoe |
| (3) Northern Kuriles Nemuro-Shimushu | Fujiyama K.K. (Otaru) (2 ships about 700 tons each) | May -Aug. | 17 | Kabumabetsu--Kataoka--Kashiwabara Bay--Ruisan--Suribachi--Kujira Bay--Murakami Bay |
| Hakodate-Shimushu | Nippon Yusen Kaisha (Tokyo; Hakodate, home port) | Apr.-Oct. | 14 | Suribachi-Ruisan--Nakagawa--Kashiwabara--Murakami Point--Murakami Bay--Araito--Aomizugawa--Kakumabetsu |

Harbors and Ports. Anchorages are plentiful at most of the Kurile Islands, but ports and harbors have not been extensively developed except for the ports of Kakumabetsu on Paramushiru Island and Shakotan on Shikotan Island. Piers are located at fishing villages and canneries in several bays, but none of them seems to be of sufficient size to handle anything but small vessels. Many of the piers are of temporary construction and are replaced each year when the ice breaks. The available port and anchorage facilities are discussed in the description of individual islands (see Appendix).

## 295. Storage Facilities

Warehouses and Coal Depots. There are provisions for a coal depot and warehouses on a large scale in connection with the harbor development at Kakumabetsu on Paramushiro, which is now reported to be completed. Similar facilities on a somewhat smaller scale may be assumed to exist at the various canning factories scattered along the shores of the northern islands and of Kunashiri and Etorofu.

## *296. Travel

# 3. ECONOMICS

# 31. FOOD PRODUCTION

## 311. Agriculture

Gardens. Agriculture in the Kuriles is limited almost entirely to small-scale truck farming on the soutnern islands of Kunashiri, Etorofu, and Shikotan. Although local conditions are suited to the raising of the hardier grains, the popular insistence upon a rice diet creates no demand for other grains and results in the importation of most of the staple food supply from Hokkaido and Honshu. The produce of the local gardens consists mostly of various kinds of beans, cucumbers, greens, potatoes, radishes (including the daikon or giant radish), onions, rape, and peas. The land is ploughed in the latter part of May and planted in June.

The garden crops are raised in quantities insufficient for marketing and are largely consumed in the family. In 1934 the total value of the crop was estimated at $13,749 (U.S.) for the three islands of Kunashiri, Etorofu, and Shikotan. The larger part of this amount came from the southern part of Kunashiri. On the other two islands there was a substantial decrease from the production of earlier years.

In the northern areas a few vegetables, such as potatoes, radishes, and onions are grown in small garden plots near the fishing camps. Peas seldom ripen, but the pods are grown and used as food.

## 312. Hunting and Animal Husbandry

Importance of Hunting. Animals are hunted in the Kuriles primarily for their pelts. Hunting plays only a very incidental role in food production. Prior to their removal to Shikotan the northern Ainu hunted the bear and other animals for their flesh as well as for their skins.

Fox Hunting and Raising. Many of the Kurile Islands support a considerable number of blue, silver, and red foxes. During the period of Russian control the northern Ainu hunted the fox extensively for the Russian-American Trading Company. In the winters of 1888 and 1889 fox hunting was conducted on Uruppu by the Japanese Imperial Sea Product Company. Foxes have also been trapped on the northern and southern islands. Since 1916 all hunting in the central Kuriles has been suspended in an effort to replenish the animal population.

Attempts have been made to raise foxes on Uruppu and Ushishir. In 1916 some Siberian foxes were purchased by the Japanese from Russia. The fox-raising industry has shown promise. In 1924 there were a total of 5,350 foxes on the fox farms of the central Kuriles.

Bear Hunting. The large bears that frequent the interior of many of the larger islands are hunted in the fall, to reduce their depredations as well as for their pelts. The bears begin hibernation early in October and break out around the first of April. Hunters use snowshoes or walk in fish-skin boots on the firm crusted snow and secure the bear soon after it leaves hibernation.

Animal Husbandry. Despite the rigorous climatic conditions, the Kuriles offer the possibility of considerable development in the livestock industry, with proper encouragement. This was earlier demonstrated in the case of cattle by the Russians, and by the Ainu before their removal to Shikotan in 1884. In recent years, however, the figures for livestock raising in the Kuriles have shown a steady decline.

Animal husbandry is confined almost exclusively to the islands of Kunashiri and Etorofu, and there principally to the raising of horses. Some 4,000 horses were reported on the Kuriles in 1929. Among the centers for horse breeding are Tomari and Uennai on Kunashiri, and Shana on Etorofu; the horses of the latter island are of especially good stock. Only 236 head of cattle were reported in 1929 for the same two islands. The lack of a demand for milk is advanced as the reason for the failure of the cattle industry to develop. Some five to six thousand chickens were also reported. At Ruyobetsu there is a branch of the Nemuro Livestock Association. In 1934, the total income from stock raising on the three southern islands was reported to be $11,551 (U.S.), of which $7,610 was from Kunashiri, $3,464 from Etorofu, and $447 from Shikotan. The total represents a decline of $4,978 from the 1929 figures.

Reindeer herding, although economically important in nearby regions and recognized by the Japanese as a potential industry, had not been introduced into the Kuriles as late as 1937.

## 313. Fishing

Importance of Fishing. Fishing is by far the most important industry in the Kuriles (see 325). It also supplies the population of the islands with a large proportion of their food. The inhabitants of the northern islands subsist entirely on seafood, supplemented with meager supplies from Hokkaido and a few garden vegetables. Fish, shellfish, and seaweed likewise play a major role in the diet of the people of the southern islands, although they receive more supplies from Japan and raise more garden crops.

## 314. Food Supplies

Available Foods. Excepting for fish, which are plentiful in most of the waters in the Kurile area, there are few available sources of food. The gardens yield only a meager supply of vegetables, there are few wild plants of value as food, domesticated animals are few in number, and, with the exception of sea and shore birds, the wild life could furnish at best only a minor source of food.

Stored Foods. Although no information is available on the amount of food stores in the Kurile Islands, it is likely that the warehouses of the fishing canneries contain considerable quantities of tinned fish, and that there are stores of rice in most of the larger settlements. In view of the extreme dampness of the climate, which makes it difficult to store perishable foods, it is likely that such food supplies as do exist are predominantly canned goods.

## 32. INDUSTRY

### 321. Handicrafts

Native Handicrafts. The Ainu formerly made pottery, wove mats, bags, and nets, manufactured bark cloth, fashioned tools and weapons of bone and wood, dressed and prepared skins, and built their native huts. Today these handicrafts have all but disappeared.

Modern Handicrafts. Two minor handicrafts have been introduced in modern times, namely, the manufacture of bamboo objects at Shikotan and the splitting of chopsticks at Ruyobetsu.

### *322. Textile and Clothing Manufacture

### 323. Housing and Construction

Native Huts. Up to very recent times, even on the island of Shikotan, the Kurile Ainu lived in semi-subterranean dwellings, which appear to have been well adapted to the climatic conditions of the islands. Traces of former native settlements are found scattered throughout the Kuriles, usually at the mouth of a brook or river. The construction of these pit dwellings was relatively simple. First a rectangular pit was dug, its size depending upon the number of future occupants of the hut. Then a framework of driftwood was erected. The flat roof rested on a horizontal ladder-like frame supported at the ends by strong upright posts. Small laths reinforced the walls and the roof, both of which were covered with a thick layer of grass and turf bricks. Turf also covered the entrance, over which was inserted a small window of translucent fishskin. A hole in the roof allowed the smoke to escape. Occasionally, several huts were connected by a number of subterranean corridors. Such dwellings provided good protection against the cold, and were easily built.

Japanese Dwellings. The information available indicates that the Japanese have not adopted the Ainu dwelling. They erect houses of true Japanese style, which are poorly adapted to the climatic conditions of the Kurile area. In the northern islands, the fishermen and canners live in loosely constructed shacks along the shore.

### 324. Mine and Forest Production

Sulphur Mining. The total value of mineral production in the Kurile Islands for 1934 was about $8,900 (U.S.). Sulphur is the only mineral which is exploited to any appreciable extent, and even the production of this is not significant. The southern islands, Kunashiri and Etorofu, are the sites of several sulphur works. Tomari, on the former, and Shana, Shibetoro, and Moyoro on the latter, seem to be the principal production centers. Outcroppings on other islands are plentiful, and mining has been attempted at various places but has usually been abandoned because of excessive transportation costs.

The following table lists the number of known sulphur deposits on the central and northern islands:

| | | | |
|---|---|---|---|
| Uruppu | 4 | Chirihoi | 1 |
| Shimushiru | 2 | Ketoi | 2 |
| Ushishiru | 1 | Rashuwa | 1 |
| Matsuwa | 1 | Shasukotan | 2 |
| Chirinkotan | 1 | Harumukotan | 1 |
| Onnekotan | 1 | Paramushiru | 2 |

Total .... 20

Other Mining. Although copper is available on the southern side of Uruppu, and iron ore exists in paying quantities near Tomari on Kunashiri Island, these resources have apparently been exploited to only a very minor degree. A 1941 report listed 66 mining claims as staked on Kunashiri Island with seven claims producing, and 29 claims on the other islands with four producing. The greater number of these claims were probably to sulphur mines. Gold and silver were mined by Russians in former years on the northern islands of Shimushu, Paramushiru, and Uruppu. The gold mines have probably been exhausted.

There is a copper mine on the southern end of Uruppu which has produced some copper containing a certain amount of gold. There is no indication that the Japanese have attempted to continue mining operations in the northern islands.

Forest Products. According to the latest available figures (published in 1934), the timber resources of the Kuriles have been but little exploited; they seem to have served principally to supply the local needs for fuel and housing materials. On Kunashiri, the total income from forest products in 1934 was ¥13,963 (U.S.), only some 2.7 per cent of the income of the island. The greater part of this came from Tomari. On Etorofu, the total was ¥9,096 (U.S.), only 0.9 per cent of the island's income. About two thirds of this came from Rubetsu. The total for Shikotan was ¥639 (U.S.), or 0.9 per cent of the income of the island. The Department of Agriculture and Forestry has established forestry offices at Tomari on Kunashiri and at Shana on Etorofu. The Suhara Fishing Company maintains a sawmill near Shana to supply its needs throughout the island.

For the timber exploitation of the remaining islands no figures are available. The mountain black alder, found on the three northernmost islands, was formerly of great importance for fuel, including that used by the canning factories. In 1934, however, the cutting of wood on government land was forbidden, necessitating the substitution of coal. A further source of wood is the large logs that are washed ashore on the western shores of Shimushu and Paramushiru and on the southern shore of Araido, where they are said to drift from places as far away as Hokkaido. This driftwood not only provides firewood but in one place is even cut into lumber.

## 325. Food Industries

Fishing. Fishing is by far the most important industry of the Kuriles, and in some localities there is no other. In recent years the salmon and salmon trout catches have become the most valuable, followed by those of crab, cod, whale, herring, and turbot. Mussels, scallops, and different types of seaweed are gathered in appreciable quantities in many areas. The total value of marine products in 1938 has been estimated at 32 million yen (about U.S. $8,960,000), of which the northern islands produced about 7 million yen, and the southern islands about 25 million yen.

Hatcheries. The Department of Agriculture and Forestry operates fish hatcheries at Tomari, Rubetsu, Murakami Bay, and Naito.

Salmon. The Japanese began to develop the salmon industry in 1896, and in 1897 the first canning factory was established at Kataoka Bay. Salmon and salmon trout are caught by trawling and by the use of nets placed in rivers and along shores, the season beginning in May and lasting until August. The greater part of the catches of white salmon and salmon trout is salted or iced, whereas most red and silver salmon are canned. The size of the catch of different species varies greatly from year to year, but in an average year about 60 per cent of the total is canned.

The northern waters around Paramushiru, Shimushu, and Araido islands have become the scene of intense fishing activity. The expansion has come about in part because of Japan's pressing need for food and for exportable commodities, and in part because of the discouraging attitude taken by the Russian Government towards Japanese fishing in Siberian waters. Trawling is especially effective, for it is possible to intercept schools of fish heading toward spawning areas on the Okhotsk Sea.

The northern Kuriles had 34 fishing bases in 1935. The most important of these were located at Suribachi Bay, Murakami Bay, Kashiwabara Bay, and Kataoka Bay. Since then a large fishing base appears to have been developed in the Kakumabetsu Bay region.

The processing of salmon, either salting, icing, or canning, was formerly done for the most part at shore bases. Recent reports indicate increasing use of large floating canneries. Shore canneries are scattered along the coasts of Paramushiru and Shimushu, with the greatest concentration at Suribachi Bay. In 1939 there were 11 known shore canneries, having a total of 25 production lines. Formerly the salmon canning industry was operated independently of the fisheries, but by 1939 both apparently had come completely under the domination of one concern, the Northern Kuriles Marine Products Company (Kita Chishima Suisan Kabushiki Kaisha).

Over-all figures for the salmon catch in the northern Kuriles in recent years are not available, but incomplete records from various sources yield the following data:

Salmon Catch in the Northern Kuriles

| Item | 1934 | 1935 | 1936 | 1938 | 1939 | 1940 |
|---|---|---|---|---|---|---|
| Number of trawlers | 200 | 200 | 200 | ... | 200 | ... |
| Salmon and salmon trout caught, all methods (in millions of fish) | 23.6 | 35.2 | 57.0 | 82.1 | 130.0 | 13.0 |
| Total pack (in thousands of cases) | 310.9 | 419.8 | 522.6 | 600 | 453 | ... |
| Estimated total value (in millions of U.S. dollars) | 4.4 | 4.2 | 4.1 | 5.0 | ... | ... |

For the central Kuriles no figures on the size of the salmon catch are available. A Russian source reported a cannery in operation on Uruppu during the summer months in 1929.

For the southern Kuriles figures on the salmon catch are difficult to obtain, since this area is regarded for most statistical matters as a section of the Nemuro Branch Bureau. The salmon industry was developed earlier in this area than in the north, but has not been as profitable. In 1935 the salmon pack in the southern Kuriles, including that on Uruppu Island, was 74,560 cases; in 1936 it was 77,338 cases. The bulk of the pack of these two years was of 'pink' salmon, one of the less valuable species.

No recent information is available regarding the number of shore bases, or the ownership of fishing concerns doing business in the southern islands. In 1936, however, there were seven known shore canneries.

Cod. Commercial cod fishing was begun by the Japanese as early as 1892. A decade ago, before the salmon and salmon trout industry had developed, cod was the most important catch of the northern Kuriles. In 1930, three fourths of the income from marine products was derived from cod fishing. Cod are caught off the western coasts of Paramushiro and Shimushu, for the most part in fairly deep water, from April through September. In 1930, 61 boats were employed in cod fishing, with crews numbering 439 fishermen. The fish are dried at shore stations, of which there were 37 in 1930, 39 in 1931, and 59 in 1935. From April to June the fish are put on poles to dry; from April to August they are opened and dried on the ground; from late August on they are salted. The salt cod are transported to the Tokyo Shibaura factory, which manufactures pickled fish. By-products are liver oil and fertilizer cakes or meal, made from scraps. In 1938, there were 2,200 persons engaged in catching or drying cod in the northern Kuriles, most of whom are said to have come from the Hitaka, Kushiro, and Esashi districts of Hokkaido, and the Toyama district of Honshu. Twelve ships were used that year, and the catch of five million cod realized an estimated two million yen (U.S. $560,000). There is also cod fishing in the southern region, but no statistics are available as to the extent or value of the catch.

Crabs. Crab fishing has been one of the smaller yet more lucrative types of fishing in the Kuriles since 1912. Tinned crab is primarily an export product, and in the past from 80 to 85 per cent of the total production has gone abroad to Great Britain and the United States. With the curtailment of British imports following the outbreak of war in 1939, the Japanese crab production was cut drastically.

The fishing season for crab starts around the first of April in the south and closes in June; in the north it begins in mid-April and ends in September. The best areas for crab in the northern Kuriles are on the western shore of Paramushiru.

There were twelve crab canneries in the southern Kuriles in 1931. In 1938 there were four in the northern area. In the latter area, during the same year, sixteen vessels were in operation, and the exceptionally good catch of 60,000 cases had an estimated value of ¥ 3,240,000 (U.S. $907,200). The migrant workmen in the north, who came mostly from the Hakodate section of Hokkaido, numbered nearly 1,000.

Herring. Herring are plentiful in certain areas, but because their routes of travel have never been clearly determined the herring industry has not developed.

Mussels and Scallops. A large mussel-gathering industry, which operates from July to the end of November, has been built up on Kunashiri, near Tomari. In 1930 a scallop-gathering venture on Araido Island failed, although approximately ¥ 12,000 (U.S. $5,880) was realized.

Seaweed. The gathering and drying of seaweed for food and market is one of the more important secondary occupations. In the northern islands, fishermen and canners engage in this work at times when weather conditions are not suited for their usual occupations, or after the salmon and cod season has ended. On Shikotan it is reported to be the chief occupation of the Ainu. The volume and value of the Kurile seaweed production are difficult to estimate since the statistics for seaweed are usually contained in the general figures for "marine production." According to figures published in 1934, however, seaweed comprised 21 per cent, i.e., ¥ 48,778 (U.S. $14,640), of the marine production in Shikotan, and 29 per cent, i.e., ¥ 143,843 (U.S. $43,140), of that in Ruyobetsu.

The potentialities for the production of fertilizer from seaweed appear not to have been developed in the Kuriles. On the other hand, the possibility of seaweed as a source of iodine may have been realized, for an iodine factory is reported for Paramushiru Island.

Turbot. Turbot are taken by trawling in the northern waters. The fish are half-cooked with steam, and broken down into powder, which in past years has been shipped to Europe as a fertilizer and food for animals. In 1931, the fish mills operated by the Northern Chishima Fishery Company produced between 200 and 300 tons of fish meal. In 1937, there were three factories preparing fish meal and cake from turbot and scraps of other fish.

## 326. Miscellaneous Industries

Fur Industry. The furs of marine animals, foxes, and bears were formerly the most important industrial product of the Kuriles. Extensive hunting, however, has greatly reduced the number of fur-bearing animals, and today furs are a relatively insignificant product. Since 1916 the central Kuriles have been closed to hunters by the Japanese Government, in an attempt to protect the dwindling numbers of land and marine animals. Some attempts have been made to raise foxes (see 312), and some bear hunting still continues in the northern islands. The land otter was formerly hunted, but this animal is practically non-existent in the Kuriles today.

Sea Otter. The sea otter yields a valuable pelt, and skins from the Kuriles are particularly prized. During the period from 1873 to 1881 sea otters were hunted extensively, and a total of 9,790 pelts were taken. A large proportion of these were secured by foreign ships operating in violation of the Japanese control. After this period, sea otters became so scarce in the Kuriles that hunting them ceased to be profitable. Left alone, the animals have made a slight recovery, and in 1931 it was estimated that there were about 600 sea otters in the Kurile area. Since then a few animals have been caught each year under government supervision.

Fur Seal. The fur seal breeds in the Kuriles, and in the past has been the source of profitable enterprise. Commercial seal hunting was early carried on by the Russians in the Kuriles, and was begun by the Japanese in 1892. In 1911 there were 53 Japanese ships engaged in seal hunting. Soon thereafter the fur seal became so reduced in numbers that it could no longer be hunted profitably. No information is available as to the number of fur seals in the Kurile area at the present time.

Whaling. Whaling is done only in the southern regions, and appears to be a summer industry exclusively. Visitors at Kurile whaling stations in 1929 described the whaling boats as modern and well equipped with wireless sending and receiving sets. Whaling is being carried on by the Norwegian method, which requires quick movements; consequently the vessels are small-sized ones of a capacity below 120 tons. Norwegian harpooners were employed by the Japanese in 1930 and possibly thereafter. The number and value of whales taken at different stations in the Kuriles in 1936 are given in the following table:

| Station | Number of Whales | Value (in Yen) | Value (in U.S. dollars) |
|---|---|---|---|
| Shakotan | 28 | ¥ 86,700 | $ 25,140 |
| Hitokappu | 91 | 205,082 | 59,450 |
| Shibetoro | 15 | 22,500 | 6,525 |
| Shana | 326 | 578,281 | 167,620 |
| | 460 | ¥ 892,563 | $258,735 |

## 327. Business and Industrial Organizations

Fishing Companies. Of the fishing companies operating in the northern islands the North Chishima Marine Products Company (Kita Chishima Suisan Kabushiki Kaisha) holds a

dominant position. In 1937, the Nishiro Fishery Company, which normally operated in Soviet waters and northern seas, extended its sphere of activity to include the northern Kurile islands.

The remaining areas in the Kuriles were reported, in 1938, to be monopolized by the Nippon Suisan Company, capitalized at 91,500,000 yen, but more specific information is not available.

Shipping Companies. For shipping lines, see 294.

## 33. LABOR

### 331. Labor Supply and Employment

Permanent Laborers. Most of the inhabitants of the Kuriles are employed in the fishing industry. Some of the permanent residents engage in such auxiliary occupations as lumbering, hunting, seaweed gathering, and bamboo handicraft. The number of permanent laborers in the Kuriles probably does not exceed eight or nine thousand men.

Migrant Workers. In addition to the permanent working population of the islands, a very important part of the labor is done by seasonal migrants from Hokkaido and Honshu. Arriving in the spring, they leave in the autumn at the end of the fishing season. In recent years this migrant population has numbered some twenty to thirty thousand annually. The Norwegian whalers have been reduced to a few veterans, and very possibly are no longer employed at all.

### 332. Working Conditions

Hardships. Working conditions in the Kuriles are difficult. Fishing is a strenuous occupation at best, and in the Kurile islands a harsh, damp climate, lack of facilities and supplies, and storms add to the hardships which the fishermen endure. The universal expression of fishermen in these waters is that life is almost unbearable; hard, unpleasant work is interrupted only briefly by hasty snacks of food and short hours of fitful sleep.

### 333. Wages and Other Incentives to Labor

Wage Scale. Although no figures are available suggesting a variation of wages in the Kuriles from the general Japanese standard, the extreme hardships endured in the Kuriles must presumably be counterbalanced by additional incentives to labor. It seems probable, therefore, that there is some increase in the wage scale.

### 334. Specialization

Occupational Specialization. Since fishing constitutes the occupation of the great majority of the population of the Kuriles, the supply of labor with special technical skills is naturally limited. A considerable proportion of the fishermen are familiar with the operation of small boat engines, and the machinery of the numerous canning factories also demands men with mechanical experience. The Sapporo Engineering Agency has offices at Shana on Etorofu and at Tomari on Kunashiri.

### 335. Labor Organizations

Fishing Guilds. In some instances guilds have been organized among the fishermen. In 1934, such guilds were reported at Ruyobetsu on Shikotan, at Uennai on Kunashiri, and on Araido Island. No other labor organizations are reported.

## 34. PROPERTY AND EXCHANGE

### 341. Land Tenure

Real Estate. No information is available concerning land tenure in the Kurile Islands. It seems clear that the central Kurile islands and large tracts of land in the other islands are owned by the Japanese Government and supervised by the Department of Forestry and Agriculture. Presumably, with respect to private property in land, the laws governing real estate in Japan are in force.

### *342. Movable and Incorporeal Property

### *343. Inheritance

### 344. Domestic Commerce

Domestic Production. Relatively complete figures are available for the total value of production in the Kuriles in 1929. They are given (in yen) in the following table:

| Produce | Kunashiri | Shikotan | Etorofu | North Kuriles |
|---|---|---|---|---|
| Marine | ¥ 2,217,029 | ¥ 562,070 | ¥ 8,560,994 | ¥ 1,185,792 |
| Industry | 634,882 | - | 777,774 | 402,886 |
| Forestry | 87,550 | 1,998 | 43,523 | 578 |
| Stock-raising | 35,792 | 1,998 | 17,824 | - |
| Agriculture | 35,845 | 2,832 | 15,888 | - |
| Mining | 10,732 | - | - | - |
| Total | ¥ 3,021,834 | ¥ 569,887 | ¥ 9,416,003 | ¥ 1,589,256 |

The above statistics clearly demonstrate the overwhelming importance of marine products in 1929. This state of affairs has apparently been exaggerated in more recent years. Incomplete figures indicate that the value of marine products in 1938 for the three southern islands exceeded 13 million yen, an increase of about one and one-half million yen, whereas the values of other products showed a slight decrease. The northern Kuriles, in consequence of the rapid development of the salmon industry, show an even greater increase in the value of their marine produce, which reached a reported value of more than 27 million yen in 1938.

Domestic Distribution. No detailed information is available as to the system of marketing and distribution prevalent in the Kuriles. In all probability, domestic commerce is largely channeled through small shops in the towns and trading posts in the outlying areas.

Domestic Consumption. The exact proportions of the various products which are consumed locally are not specified. Indirect evidence, however, indicates that the products of forestry, stock-raising, and agriculture are largely consumed in the Kuriles, whereas the products of fishing, industry, and mining enter mainly into the export trade.

### 345. Foreign Trade

Commerce with Japan. The people of the Kurile Islands are dependent upon the outside world for most of their necessities. Among important commodities, they are self-sufficient only with respect to fish and possibly also green vegetables for food. Foreign commerce is carried on exclusively with or through Japan. The only important export is marine produce, including canned fish and dried seaweed. The ships which carry this produce to Hokkaido or Honshu bring, when they return, cargoes of coal, oil, straw mats, rope, empty tins, foodstuffs (especially rice), and mail.

Commerce with Foreign Countries. In recent years, with the rapid expansion of canned salmon and crab-meat exports, the Kurile Islands have become increasingly dependent on non-Japanese markets, especially those of Great Britain and the United States. This fact has become strikingly manifest in the recent sudden boom and depression in the northern Kuriles. The southern islands are also affected, but to a somewhat lesser degree.

Although much of the produce of the Kuriles ultimately finds its way to non-Japanese markets, it is first transported to Hokkaido or to Honshu and transshipped from there. No direct commercial contacts exist between the Kuriles and non-Japanese ports in Asia or America.

## 35. FINANCE

*351. Currency

*352. Foreign Exchange

*353. Banking and Credit

*354. Investments

*355. Stock and Commodity Exchanges

*356. Public Finance

# APPENDIX: INFORMATION ON SPECIFIC ISLANDS

# A. NORTHERN KURILES

## 1. Shimushu Island

Kurile Strait. Shimushu Island is separated from the long, low Lopatka Peninsula of Kamchatka by the Kurile Strait, seven miles in width. The channel, which is three miles wide and from 50 to 100 feet deep, is narrowed by a dangerous reef which extends from Cape Lopatka in a northeasterly direction. Two short reefs jut into the channel from the northeast points of Shimushu. Tidal currents are strong (five to six miles per hour), and there are occasional rocks and shoals to be avoided.

Topography. Shimushu Island is 14 miles long, 12 miles wide, and nearly 100 square miles in area. It differs from the other islands in the Kurile group in that its surface is low and rolling. The highest elevation of the island is in the southern part, where Mitsuka Yama (Three Hills Mountain) rises 623 feet in height.

Drainage. The low hills are separated by swampy valleys, and many small lakes and ponds are found in the low basins. Small streams flow between the hills to the coast. The water supply should be adequate for relatively large numbers of troops.

Most of the lakes are of the drainage type and are connected with the surface drainage of the district, but some are of the seepage type, possessing neither inlet nor outlet, the movement of water through the basins taking place entirely underground. On the Okhotsk coast of the island the development of sand dunes is prominent, and many lakes lie inside them. Of these lakes the Bettobu-numa group are the most important. Bettobu-numa, the largest lake of the group, has an area of 0.47 square miles. The lake is tidal, although it is barriered by sand dunes about 1 1/4 miles wide and is elevated about 7 feet above sea level. In the winter season the outlet, Bettobu-gawa, becomes completely barriered by the sand at its mouth, and in the spring the vast marsh which surrounds the lake is flooded to form a large sheet of water, including Kitabettobu-numa and Minamibettobu-numa. The lake receives three large rivers that originate in the interior of the island and one that comes along the inside of the dunes. Minamibettobu-numa is only a detached arm of Bettobu-numa, separated from it by a marsh. Both of these lakes are very shallow.

There are also a number of small lakes near Mitsuka-yama, the largest of which is Kaihyo-ike, with a length of about half a mile.

Flora and Fauna. Scrub pine, alder, grass, and mosses cover the island with a low growth.

Foxes are plentiful, and there were formerly a few bears. Small rodents and weasels are reported. Shore birds and sea fowl are numerous. Fish may be caught almost anywhere off the coast during the summer. The yearly codfish catch is about 50,000 fish.

Coast. The coast consists of cliffs (240 feet high on the east and 120 feet on the west), steep, rocky points, and sandy beaches backed by sloping grassy cliffs at the heads of inlets. For the most part the cliffs are bare of vegetation. Water depths are 12 to 30 feet for considerable distances offshore, and make the eastern and northern coasts very difficult to approach.

Harbors and Anchorages. Bettobu anchorage is located on the northwest coast. This roadstead is six miles across and has depths of 60 to 90 feet over a sandy bottom. There is a sandy beach with low sand hills behind it. A few hundred yards off shore the water is between 30 to 48 feet deep.

Kataoka Bay, in Little Kurile Strait, is the site of several large fishing stations which are provided with oil tanks. A river flows into the bay, and near its mouth is a pier. Kataoka Bay is reported to be an excellent harbor.

Nakagawa, on the southeast coast, is an unimproved anchorage off a fishing village and cannery.

Population and Settlements. The population in 1940 was given as 1,805, including 1,729 men and 76 women. In 1935 the number of persons was reported to be 2,820, and in 1930 only 424.

The most important village is Kataoka. There is another village of some importance on the northwest coast, off Murakami Zaki. At Nakagawa there is a fishing village and a cannery.

(Naval, military, and air bases, with their installations and personnel, are intentionally omitted in the descriptions of this and other islands.)

Communications. On Shimushu Island, there is a radio station at the lighthouse on Kokutan Point, with the call letters EUY as of 1939. It was permitted to transmit messages in the Japanese language. At the fishing station on Murakami Point there is a private station, and another at the depot of the Northern Kurile Fishing Company on Kataoka Bay. The Kataoka station had the call letters JKY in 1939; it had a power of 50 watts, a transmitter of the A-3 type, and a frequency of 1,650 to 1,700 kcs.

## 2. Paramushiru Island

Paramushiru Strait. This strait separates Paramushiru Island from Shimushu Island. It is about five miles long and one mile wide at its narrowest part. From the Pacific there are three entrances to Paramushiru Strait: the first, between Cape Levasheff and Bird Rocks, is about 2 miles wide and has a depth of 12 to 17 fathoms; the second, between Bird Rocks and Kokskar Rock, is six miles wide and 14 to 20 fathoms deep; the third, between Kokskar Rock and Pinnacles Point, the southeast cape of Shimushu, is about five miles wide. About two miles to the north, three-quarters east of the Kokskar rock, is a patch of rocks just awash. Currents are strong. There are several bays with sandy beaches on the Paramushiru side of the strait. Spring tides are 5.2 to 6.7 feet.

Topography. Paramushiru Island is about 60 miles long and nearly 12 miles wide, and has an area of approximately 600 square miles. It is among the most completely mountainous of the larger islands of the Kurile chain. Nearly the entire surface is covered with volcanoes, which have been formed in four ranges in echelon. The ranges are separated by valleys, which cut through the island from east to west. Shiriyajiri Mountain erupted in 1854-59. All the volcanoes are now dormant, but steam issues from a few of them. A number of fumeroles are to be found at Hakuenzan in the Tijura range, and at Iozan in the Io range.

The northernmost ranges reach heights of 4,700 feet and occupy the entire northern part of the island. Another mountain chain lies west of the lowlands to the south, and provides a backbone for a north to south arm of land. In this range elevations reach nearly 6,000 feet. To the west of these mountains the Moyoro River Valley separates the peninsula occupied by Shiriyajiri Mountain (6,894 ft.) from the rest of the island.

Drainage. About two thirds of the way south, at the point where the island turns westward, swampy river valleys extend inland from both coasts. One of the rivers, the Todorokigawa, is about 25 miles in length. It flows from the Tikura range to the Pacific, its mouth opening into the Bay of Otomae. The stream is quite wide and about four feet deep. In its lower half, the Todorokigawa crosses a great marsh.

Several lakes are found in the low, marshy country, known as Suebettobu-numa, on the south side of the island. The largest of these lakes is Suebettobu-numa proper, with an area of 0.76 square miles. It is a sand-barriered lagoon situated at an altitude of about 10 feet above sea level. Bettobu-numa is slightly smaller and is separated from the Bay of Musashi by sand dunes.

On the Pacific coast, in the vicinity of Suribati, which is the largest center of the canning industry in the Northern Kuriles, there are a number of small lakes and extensive marshes. On the terrace behind the bay of Murakami-wan there is a small lake which is utilized as a reservoir for a canning factory.

Yoda-ko is a volcanic barrier lake on the west coast of Paramushiru. It is surrounded by high mountains with numerous snow patches that remain unmelted all summer. Many streams flow into the lake at its east shore; the overflow forms rapids through a deep valley and empties into the Okhotsk Sea at Arawaka. The lake is famous as a natural hatchery of the red salmon.

Flora and Fauna. In isolated and protected valleys there are some foliage trees which would yield lumber. Scrub pine, alders, and other small trees grow on the lower slopes of the hills. Shrubs and grasses carpet the valleys.

Bears, foxes, and lemmings are common. Ptarmigan are found, but other land birds are not numerous. There are a few shore birds and numerous sea fowl. Seals formerly frequented the coast and a few sea-lions are reported. There are trout in the streams, and salmon trout are plentiful toward the end of July. Cod, halibut, and rockfish abound in certain places off the coast. There were a few horses on the east coast in 1930.

Coast. In general the sea cliffs on the eastern coast are higher than those on the western side, while the submarine shelf off the eastern coast is shallower than that on the west. The Okhotsk coast has cliffs and boulder beaches, but very few outlying rocks. The Pacific coast, on the other hand, has a greater number of low beaches, but has

many rocks offshore. Depths along the Pacific coast of Paramushiru are 10 to 20 feet at 200 yards offshore, whereas along the Sea of Okhotsk coast depths are between 36 and 60 feet at the same distance. There are several ledges 60 to 90 feet above the sea, and still others at elevations of 120 to 240 feet. Elevated sand dunes less than 60 feet in height are found at the northern and southern extremities of the island.

Harbors and Anchorages. The best harbor on Paramushiru is Kakumabetsu, located in the center of the northwest coast. The harbor has been improved as the site of a permanent fishing base. In 1933 an appropriation of 10 million yen was made for improving the harbor and constructing a coal depot, water supply station, piers, cold storage bins, and warehouses. It was estimated that the improvements would be completed in five years. In 1938 there was reported to be a jetty, 200 feet in length, alongside of which there was a depth of eight feet at high water. Kakumabetsu Bay has depths of 54 to 60 feet.

South of Kakumabetsu, on the northwest side of the island, is Kujira-wan, with minimum depths of 48 feet. Murakami-wan, on the strait between Paramushiru and Shimushu, has a fishing station and a canning factory with a small pier, where landing may be made even at low water. Suribachi, on the southeast coast, also has a landing pier, which serves the canning factory and fishing station located there. Other known harbors are Ruisan on the southeast coast and Kashiwabara on the strait between Paramushiru and Shimushu. All the above were ports of call for vessels of the Fujiyama Kaisen K.K. and the Nippon Yusen Kaisha.

Apart from these anchorages, there are a number of other bays and anchorages where fishing villages are located. The most important of these are Moyoro, Musashi, and Otomae Bay, all at the southern end of the island. At each of them there is a small village. Musashi Bay is reported to have a small pier at the village of Haisha.

Population and Settlements. No recent figures on the population of Paramushiru are available. In 1930 the number of permanent inhabitants was reported to be 20. These were caretakers at the fishing stations along the coast.

No permanent settlements of any consequence are reported for Paramushiru. Fishing stations and canning factories have been located at the harbors enumerated above.

Communications. A branch of the Hakodate Post Office operates at Suribachi Bay on Paramushiru. It is open daily during the summer season, closing in September.

At least five radio stations have been reported for Paramushiru Island. One of these, probably located at Ruisan, was said in 1937 to be a second-class station with a range by day of 1,500 kilometers and several times this at night. It was used to communicate with the fishing fleet off the coast of Kamchatka. Known as the "Paramushiru Station," it uses two call letters: JHH, operating on a frequency of 96 kcs; and JHI, operating on frequencies of 4,490, 6,190, and 8,860 kcs. Another station is located at the meteorological observatory at Suribachi Bay. This was given the call letters JGJ in 1939. At that time it was furnished with two types of equipment. The first type had a power of 250 watts, an A-1 type transmitter (telegraphy on a pure continuous wave), and a frequency of 6,030 to 8,750 kcs. The second type had a power of 100 watts, an A-1 type transmitter, and a frequency of 170 kcs.

The other radio stations on the island all belong to the various fishing companies. The former Japanese-American Fishing Co. (Nichibei Suisan K.K.) maintained one at their base at Kakumabetsu Bay; the Northern Pacific Fishing Company (Hokuyo Suisan K.K.) had another at Moyoro Bay; and the Northern Kurile Fishing Company (Kita Chishima Suisan K.K.) operates a station at Kashiwabara Bay. The call letters of the last mentioned were JKZ in 1939. It has a power of 50 watts, a transmitter of A-3 type (telephony), and a frequency of 1,650 to 1,700 kcs.

### 3. Araido Island

Topography. Araido Island lies 12 miles northeast of Paramushiro Island, is 26 miles in circumference, and has an area of about 50 square miles. Its central volcanic peak, the highest in the entire Kurile chain, has an elevation of 7,654 feet. Throughout the island slopes are steep and terminate in low sea cliffs. No marine terraces have been observed. The volcano is no longer active; the last eruption occurred in 1894. Other known eruptions were in 1770, 1789, 1793, 1828-29, 1839, 1848, and 1854. An earthquake shook the island on November 15, 1933. The crater of the central cone and the atrio of the somma are permanently covered with snow.

Drainage. The rivers are few and short, and they flow rapidly down the sides of the mountain. There are no lakes.



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Flora and Fauna. The hills and terraces are well carpeted with fine grasses and herbaceous growths. Sometimes there are dwarf shrubs. In many places there are impenetrable alder thickets, more often on the western and northern than on the eastern and southern slopes. Near Maruyama on the southern coast the alders reach a height of more than ten feet. No other trees grow on this island, and in general the vegetation is poor.

The fox is the only land animal. Sea birds are not numerous. Fish are plentiful off the coast.

Coast. The coast is bold and steep on the southern and western sides. On the southeast coast, a stream of lava has formed a low point. There are few sandy beaches.

In 1934, Taketomi, a new volcanic islet rose from the sea about one quarter of a mile off the eastern coast of Araido Island. The eruptive center of Taketomi lies at 155° 40' 6" E. and 55° 50' 10" N. The islet has an area of 0.17 square miles, and consists of ash and sand mixed with scoria of basaltic lava. Its height on September 5, 1934, was 370 feet. It is probable that the islet has decreased in height since that date.

Harbor and Anchorages. The best anchorage is at Ichinowatashi on the southeast coast. This has been used by the Nippon Yusen Kaisha steamers. It is also possible to obtain anchorage and to land at Kataura on the northern coast. There are several other minor anchorages along the western shore of the island. The formation of the new islet, Taketomi, has probably created a large sheltered lagoon off the eastern coast.

Population and Settlements. The number of permanent inhabitants of Araido Island is probably very small. There are several fishing stations located along the western shore of the island.

Communications. There is a radio station at Ichinowatashi, on the former premises of the Hokkaido United Fishing Company (Hokkaido Gyogyo Kumiai Rengokai).

## B. CENTRAL KURILES

### 4. Shirinki Island

Topography. Shirinki Island is a small volcanic peak with an area of one and three-quarters square miles. It is rugged, rising to 2,459 feet.

Flora and Fauna. There are no trees on this island, but grasses and mosses grow in the lower parts.

Coast. There is a boulder beach on the north; elsewhere cliffs rise sharply from the sea. The tidal currents between this small island and Paramushiru are strong.

Harbors and Anchorages. Temporary anchorages in 60 to 90 feet of water are available off the northern coast.

Population and Settlements. Shirinki Island is reported to be uninhabited.

### 5. Onnekotan Island

Onnekotan Strait. Onnekotan Island is separated from Paramushiru by Onnekotan Strait. The strait is deep, 29 miles wide, and free of danger to within 1,500 yards of Paramushiru Island. A short reef extends out from Cape Kimberley, the northwest point of the island.

Topography. Onnekotan Island is about 25 miles long. For about two thirds of its length from the northeast end, the island has an almost uniform width of 4 1/2 miles; it then bulges out to form a round area about 9 miles in diameter. The total area of this island is nearly 150 square miles. There are two peaks, one at each end, with lower, rough land between them. In the north is Mount Nemo (3,341 feet), a volcano which last erupted in 1906. The volcanic mass in the south culminates in Kurcishi-yama, a volcanic peak 4,352 feet in elevation, formerly known as Mt. Blackiston.

Drainage. Kuroishi-yama stands in the middle of a large crater lake, the Yusenko. The lake has no drainage and is encircled by a crater rim with a very deep inner wall. Yusenko ranks seventeenth in size among the lakes of the Japanese Empire; it is about four miles in diameter and has an area of more than 13 square miles. At the foot of Nemo-yama, to the northeast, there is a crater lake lacking drainage, the Horaiko, which covers an area of about two square miles. It is three miles long and somewhat less than a mile wide. On the southern side of Nemo-yama there are a number of very small lakes.

Flora and Fauna. There is a growth of scrub in some places on Onnekotan, but there are no forests. A few foliage trees grow here and there. The valleys are covered with a rank growth of grass and nettles; the slopes of the hills are covered with grass and moss. Wild flowers grow in profusion.

The fox and the lemming are reported to be the only land animals. Seals were formerly common. Onnekotan has relatively few sea fowl. Codfish are caught off the coast in small numbers.

Coast. From the south, the Okhotsk Sea coast of Onnekotan is steep and practically straight until Cape Nemo is reached. Behind the cape lies Nemo Bay with its low, sandy shoreline. A small stream runs into the bay. The cliffed shore is resumed on the north and northeast sides of Nemo Bay, broken only by the mouths of small streams. The Pacific coast consists of high abrupt cliffs, with little or no beach, from the south as far up as Blackiston Bay, which has a broad, sandy, low shore. Kelp grows in large quantities off the coast, but there are no off-lying dangers. The water is 18 to 24 feet deep on the central and east coasts, 24 to 40 feet deep elsewhere.

Harbors and Anchorages. Blackiston Bay affords anchorage on a sandy bottom in from 9 to 12 fathoms. Nemo Bay is an open roadstead affording fair anchorage in from 10 to 12 fathoms with a sandy bottom.

Population and Settlements. Formerly there were small settlements at Blackiston Bay and at Nemo Bay. There are now no permanent inhabitants.

## 6. Makanru Island

Yamato Strait. Makanru Island is separated from Onnekotan Island by Yamato Strait, which is 13 miles wide. The strait is deep and free of danger.

Topography. Makanru is roughly oval in form, about six miles long from north to south, and four and one-half miles at its greatest width. The island has an area of about 22 square miles. Makanru consists of an irregular mass of peaks with elevations reaching nearly 3,500 feet. There is no single well-formed cone. The volcanoes are not active at the present time.

Flora and Fauna. The low ground and the lower slopes of the mountains are green with vegetation, and here and there are a few scrub trees. The only land animal is the fox. There are numerous sea fowl. Cod and rockfish are plentiful.

Coast. There are boulder beaches on the northern, northeastern and southern coasts, with a short stretch of low hilly land behind. Elsewhere the shore is bounded by lofty cliffs with a narrow beach at their base.

Harbors and Anchorages. There are no good anchorages. Off the southern end of the island there are soundings of 42 to 100 feet at a safe distance from the shore.

Population and Settlements. There are no permanent inhabitants, but the island is occasionally visited by hunters and fisnermen.

## 7. Harumukotan Island

Harumukotan Strait. Harumukotan Island is separated from Makanru by Harumukotan Strait, which is eight miles wide and from 72 to 220 feet deep. Tidal currents are three to four miles per hour in the strait.

Topography. Harumukotan Island is about six and one-half miles long and a little less than four miles wide. It has an area of 16 square miles. Near the center of the island rises the double truncated cone of an extinct volcano, with an elevation of about 4,050 feet. The walls of the outer cone are broken away, forming a breach on the eastern side. On the northern slope there are two lower peaks and a short ridge. The northwestern portion of the island is low; here there are sand dunes and low hills.

Drainage. The lowlands of the northwestern part of Harumukotan are dotted with small lakes and ponds. The only lake worthy of note is Saiunumá in the extreme northwest.

Flora and Fauna. Some scrub grows on the lower parts of the island, but there is no timber. Foxes were formerly common. Sea fowl are comparatively rare. Codfish are caught off the northwest coast.

Coast. In summer the entire island is surrounded by an unbroken belt of kelp. With the exception of the northwestern portion, the coast is bordered by high steep cliffs with a narrow bouldery beach at their base.

Harbors and Anchorages. The best anchorage is at Harumukotan Bay in the northern corner of the island. The shores of the bay are sandy; anchorage is obtainable in 36 to 72 feet of water. Another anchorage is reported for the southern shore.

Population and Settlements. Formerly (about 1850), there were small settlements at Harumukotan Bay and on the western coast, but the island is reported to be uninhabited today.

## 8. Shasukotan Island

Shasukotan Strait. Shasukotan Strait, which separates Shasukotan Island from Harumukotan Island, is 15 miles wide, 186 feet deep, and free from dangers. The tidal current is strong, reaching six to eight miles per hour.

Topography. Shasukotan Island is nearly 13 miles in length and five miles wide except in the center, where the land narrows to about a half a mile in width. Its area is about 40 square miles. The island consists of two roundish mountainous areas, joined together by a narrow strip of land 460 feet in elevation. The northern part of the island

has two peaks, Kurodake and Akadake. Kurodake (3,000 ft.) is reported to be an active volcano. There is a sulphur deposit to the north of this volcano. In the southern part of the island Iwodake reaches a height of 2,950 feet. On its western side there is an active crater in which there is a deposit of sulphur. Attempts to exploit the sulphur deposits have been made, but they were abandoned.

Flora and Fauna. There is no timber, but there is a small quantity of scrub on the northwestern part of the island. Grass and moss cover the mountain slopes. The fox is the only land animal. Sea fowl are plentiful.

Coast. Large patches of kelp completely surround the island. The entire coast is rocky, and the land rises steeply from the shoreline.

Harbors and Anchorages. The best anchorage is reported to be Otome Bay, with from 10 to 16 fathoms of water and a sandy bottom. Anchorage is also possible off the northern shore in from 9 to 15 fathoms. About the middle of the island on the Pacific side, where a reef juts out to sea, anchorage may likewise be obtained.

Population and Settlements. The island is reported to be uninhabited.

## 9. Ekaruma Island

Ekaruma Strait. The strait separating Ekaruma from Shasukotan is about 3 1/4 miles across at the narrowest part and is free from dangers. It is less than 300 feet deep.

Topography. Ekaruma is about three and three-fourths miles long east and west, and two and one-quarter miles wide; its area is about six square miles. On the western side of the island a volcanic peak, Ekarumadake, rises to a height of 4,150 feet. The volcano was reported to be still active in 1930. From the peak, a ridge about 2,800 feet high extends in an easterly direction, terminating in high steep cliffs.

Flora and Fauna. The slopes of the volcano are bare of vegetation with the exception of some scrub on the lower slopes on the northern side. The shore cliffs are covered with grass. Sea fowl are numerous; there are no land animals.

Coast. The shores are generally bounded by abrupt cliffs. The eastern and northern coasts have steep cliffs with a bouldery beach at the foot.

Harbors and Anchorages. The only anchorage is on the southeastern side in from 10 to 15 fathoms, with a hard bottom. There are no flying dangers, and the coast may be approached with safety.

Population and Settlements. Ekaruma is reported to be uninhabited.

## 10. Chirinkotan Island

Topography. Chirinkotan is a small round island, about four miles in circumference, with an area of one square mile. It has a double volcanic cone, the outer one breached on the southeast side. The volcano peak is sharp, and its slopes are very steep with deep valleys. The highest part of the island reaches an elevation of 2,400 feet. In 1890 the volcano was reported to be active, with lava flowing through the breach down the side of the volcano into the sea. There are numerous sulphur deposits.

Flora and Fauna. The southeast side of the island is bare, but elsewhere there is a growth of grass and moss. There are no land animals; sea fowl breed here in large numbers.

Coast. In general, the coasts are bounded by bold cliffs, but on the northwest side there is a boulder beach.

Population and Settlements. Chirinkotan Island is uninhabited.

## 11. Raikoke Island

Mushirure Strait. Between Raikoke Island and Shasukotan Island lies the wide Mushirure Strait. It is very deep, 40 miles in width, and free from dangers other than the

Mushirure Rocks. These four rocks, reaching heights of 140 feet, are arranged in semicircular fashion and are surrounded with vast beds of kelp. While anchorages of 60 to 90 feet are available among these rocks, strong tidal currents and tide rips make shelter there dangerous.

Topography. Raikoke is a round island, about a mile in diameter. The volcanic cone is 2,050 feet in elevation, with its apex much broken away. The mountain slopes are steep and covered with loose volcanic cinders. An eruption in 1924 markedly changed the features of the island. The western side of Raikoke is generally higher than the eastern.

Flora and Fauna. There is no timber, but prior to the eruption of 1924 a scanty vegetation grew on the lower slopes of the volcano. There are no land animals; sea fowl are numerous.

Harbors and Anchorages. Prior to 1924 the water was deep all around the island. Off the south coast anchorage was possible in from 13 to 16 fathoms of water.

Population and Settlements. The island is uninhabited.

## 12. Matsuwa Island

Matsuwa Strait. The strait separating Matsuwa Island from Raikoke Island is nine miles wide, very deep, and free of danger.

Topography. Matsuwa Island is six and a half miles long and three and one-half miles wide. It has an area of about 20 square miles, including the offlying island of Banjo. Banjo Island, off the east coast of Matsuwa, is a mile in length and 200 feet in height, and has a rolling surface covered with grass and moss. Matsuwa is a volcanic island whose peak reaches a height of 4,870 feet. Mt. Fuyo broke out in a violent eruption in February, 1928. Another eruption occurred in 1930. The mountain has a long slope toward the south, and low hills gradually descend to a sandy beach.

Drainage. The rivers are small, and rush swiftly through narrow gullies.

Flora and Fauna. The mountain slopes above 2,000 feet are bare of vegetation. The lower slopes and the southern part of the island are covered with grass and moss. Occasionally there are dense alder thickets, but scrub pine and bamboo grass are absent. In the valley near Yamato-wan, alders attain a height of eight to ten feet.

Coast. The west, north, and northeast coasts end in steep high cliffs with deep water close in to shore. The southeastern shore is a sandy beach. A long reef extends from the western end of the southern shore, and another shorter reef from the east coast.

Harbors and Anchorages. Anchorages are obtainable between Banjo Island and Matsuwa Island in 18 to 54 feet of water, and in Ainu Bay on the southwest coast in 48 to 84 feet of water.

Population and Settlements. Two Ainu couples were raising foxes on the island in 1930. There are several shelter huts, which receive occasional visitors, on Ainu Bay and Yamato Bay. These bays are joined by an overland path.

Communications. A radio station has recently been reported for Matsuwa Island.

## 13. Rushuwa Island

Rushuwa Strait. The strait separating Rushuwa and Matsuwa Islands is fourteen miles wide, and very dangerous because of its ridges, rocks, strong tidal currents, and heavy tide rips.

Topography. Rushuwa Island is eight and one-half miles long, north to south, and three and one-half miles wide, with an area of about 25 square miles. The island has two mountainous areas, one in the north and the other in the south. The mountain peaks in the north are the highest, one attaining an elevation of 3,132 feet. This volcano is still active. The southern part, limited by Chotozan (1,640 feet), is a flat upland extending to the southern point.

Drainage. The rivers are all small, the largest being the Onumagawa, which is about three miles in length. There are two small lakes, Onuma and Konuma. In addition,

there are several pools and ponds in the boggy places between Porochanupuri and Cnotozan. On the western coast there is a warm spring with a water temperature of 110° F.

Flora and Fauna. Dwarf pines extend from marine terraces to high mountains all over the island, often forming impenetrable thickets. Birches attaining heights of 20 to 30 feet are distributed on the mountain slopes. On the lower slopes and in the alluvial valleys they form dense thickets. Along the valleys and on hillsides there are also thickets of alder. Heath is well developed on the flat uplands and exposed mountain sides. Grass grows on the lower gentle mountain slopes or hillsides. There is no bamboo grass on Rushuwa.

There are a few foxes, but no other land animals. While land and shore birds are rare, sea fowl are plentiful. Fish are scarce.

Coast. The seashore is bold and steep, with high cliffs facing the sea. Sand beaches are rare and of brief extent.

Harbors and Anchorages. The water is deep close in to the shore; good anchorages are lacking.

Population and Settlements. Rushuwa is reported to be uninhabited.

## 14. Ushishiru Islands

Srednoi Strait. The strait between the Ushishiru Islands and Rushuwa Island is about 9 miles wide. A ledge appears to extend right across the strait, with varying depths of water upon it. Srednoi Reef, which lies nearly three miles off the north end of Ushishiru, is about two miles long. Most of the reef is under water and kelp beds grow around it. Between Srednoi Reef and Rushuwa the channel is deep and safe, but the tidal currents are strong.

Topography. The two islands of this group are each about one and one-half miles long. The northern island is a flat terrace about 300 feet high.

The southern island, the larger of the two, is a volcanic crater (1,360 feet) which has been breached on its southern side, giving access to the sea. The outer entrance is between high perpendicular rocky cliffs on the west, and a ridge of sandy hills on the east. A short distance inside the entrance, two low bouldery spits run out, one from each side, narrowing the entrance to about 20 yards. Within the landlocked circular basin the tidal water is from five to twenty-three fathoms deep. The western walls are high and steep, but to the east and southeast the walls are only about 400 feet high. There is a narrow beach all around the basin, and the water is smooth. In the crater bay on the inner side, there are warm springs and sulphur deposits.

Flora and Fauna. The Ushishiru Islands are covered with heath; there are no forests or thickets. Land animals are lacking, but myriads of sea fowl frequent the crater basin.

Coast. The islands are surrounded by high cliffs with boulder shores at their base. Occasional sandy shores are found along the coast of the southern island, formed mainly by volcanic sand and ash.

Harbors and Anchorages. The best anchorages are between the two islands on either side of the connecting reef, near the southern island. On the western side, Nishi Bay has depths of 48 to 96 feet over a sand bottom. Higashi Bay in the southern part of the south island has about the same depth, but the bottom is hard.

Population and Settlements. The islands are reported to be uninhabited.

## 15. Ketoi Island

Ketoi Strait. The strait between Ketoi Island and the Ushishiru Islands is 13 1/2 miles wide and free from dangers.

Topography. Ketoi is a round island, about five and one-half miles in diameter, with an area of about 35 square miles. The island is mountainous, the highest peak, Mt. Ketoi, attaining a height of 3,841 feet. The mountains are all of volcanic formation and are located in the central and northern part of the island. Other important peaks are Mt. Uyematsu, Mt. Kabuto, and the still active Mt. Hakuyen.

Drainage. The only lake of importance on the island is the volcanic Lake Ketoi, situated between Mt. Ketoi and Mt. Hakuyen. The Takino-sawa, blowing from Lake Ketoi toward the southeast, is the largest river. There are several pools and ponds in boggy places on the plateaus of the southern part of the island.

Flora and Fauna. Forest vegetation, chiefly scrub pine, is well developed in the valleys and on the lower slopes of the mountains, forming dense thickets. There are tall stands of birch in the southern part of the island. Beneath these trees is found a thick growth of bamboo grass. Alder thickets are scattered along the valleys.

The fox, still plentiful in 1930, is the only land animal. Birds are not numerous, and fish are scarce.

Coast. The island is surrounded by high cliffs with bouldery shores at the base; scarcely any sandy beach is to be found. On the northern side, however, the cliffs lie inland and are fronted by low, flat land for one and one-half miles. There is a cliff on the northwest shore, but slopes are gradual toward the southern and eastern coast. On the southeast side, rocks and ridges are found offshore for nearly two miles. Elsewhere the water is deep close in to shore, and there are no offlying dangers.

Harbors and Anchorages. There is anchorage on the northern side of this island in water from 60 to 70 feet deep, and also off the southern coast in water from 72 to 90 feet deep. The bottom is rocky. Landing can best be effected on the west side of the southwestern point.

Population and Settlements. Ketoi Island is reported to be uninhabited.

## 16. Shimushiru Island

Shimushiru Strait. The strait between Shimushiru and Ketoi Islands is eleven miles wide and very deep. It is free from danger, but the tidal currents are very strong, especially near the shores.

Topography. Shimushiru Island is 31 miles long and nearly five miles at its greatest width, with an area of about 126 square miles. It has two prominent elevations, Shimushiru Fuji in the north (4,460 feet), and Shimushiru Mountain in the south (5,004 feet). The island has three distinct areas: the southwestern portion, which is dominated by the volcanic mountains, represented by Shimushiru Mountain; the central area, characterized by a flat upland plateau, bounded on the north by Shimushiru Fuji; and the northeastern portion, with several smaller mountains. Yakeyama, in the southern mountain range, is still active; it last erupted in 1914.

Drainage. The streams on Shimushiru Island are small and few. To the northeast of the southern mountains there is a lake, Midoriko, which has no drainage. It lies in the middle of a ridge of hills, about 65 feet above sea level. There are a number of small ponds in the lowlands, set in small swampy areas.

Flora and Fauna. The forest growth of Shimushiru is very similar to that of Uruppu. The woods are mostly of the shrubby type. Scrub pine, alder, and birch trees form dense thickets. On the northeastern part of the island, from Shimushiru Fuji northward, there are impenetrable tangles of scrub pine. Alder thickets clothe the ranges from the bottoms of the gullies to the ridges of the mountains in the central part of the island. Grass lands are well developed, especially in the vicinity of Broughton Bay.

The fox is the only land animal. Land birds are few in number, but sea fowl are fairly plentiful. Fish are scarce both in inland waters and along the coast.

Coast. There are many rocky cliffs along the coast. The southwestern coast is steep and bold with a few rocks close inshore. The southeast coast is comparatively free from rocks, but the northwest coast is rocky with many kelp patches.

Harbors and Anchorages. Broughton Bay on the northeast coast is a large, circular body of water two and one-half miles in breadth, with an area of 6 square miles. This bay is listed in the Japanese register of lakes as the twenty-sixth in size in the Empire. It is an old crater and would be circular in form were it not for a volcano which projects into its eastern side. Surrounding the bay is a ridge of rocky hills. Connecting the bay with the sea is a breach through the narrowest part of the ridge. This entrance has a water depth of less than six feet. The eastern point of the bay is a bluff. The western point is a short, low shingle beach. The water inside is always calm. A large bed of kelp lies both outside and inside the passage, and tidal currents run with considerable

velocity. If the entrance has been improved, Broughton Bay is now a magnificent harbor.

On the southwestern side of the island, where a low strip of land connects Shimushiru Mountain to the rest of the island, there is Shimushiru (Milne) Bay. Here water 54 to 60 feet deep is available over sand, but anchorage is safe only with southeast winds.

Population and Settlements. In 1940 there were 82 persons on Shimushiru, of whom 65 were men and 17 were women.

## 17. Chirihoi Islands

Kita Uruppu Strait. The strait between the Chirihoi Islands and Shimushiru Island is the widest in the Kurile Islands. It is 36 miles in width, very deep, and free from obstructions. Currents are strong. East winds are accompanied by dense fogs.

Topography. The Chirihoi group consists of two islands. The southern island is about two and one-half miles long, with an area of a little more than three square miles. The principal peak, reaching a height of 2,470, is an extinct volcano lying on the western side of the island. Smaller peaks extend in a northeasterly direction from the highest one.

The northern island is about three and one-half miles long and has an area of about three and three-quarters square miles. There are three conspicuous peaks. The northernmost is the highest (2,360 feet); it is now extinct, and a great part of the crater has fallen away on the northwestern side, leaving perpendicular bluffs. Projecting from its southern slope there is a volcanic cone of less elevation; this was still active in 1900.

Flora and Fauna. Except on the steepest parts of the southern island, which are on the western side, the whole island is overgrown with grass and moss. There is no timber or scrub. The northern island is bare of vegetation with the exception of the northeastern point, which is covered with grass and moss. There are no land animals. Sea and shore birds are plentiful, but land birds are limited to ravens and wrens. Fish are scarce.

Harbors and Anchorages. On the eastern side of the northern island there is a small bay formed by two narrow points which reach out for nearly a mile. Anchorage in 13 fathoms with a sandy bottom is available here.

Population and Settlement. The islands are reported to be uninhabited.

## 18. Burotan Island

Topography. Burotan Island is roundish in form, about five miles in circumference, with an area of about two square miles. It is rugged and dome-shaped, with a maximum elevation of about 2,900 feet. The island is volcanic, but it has long been inactive.

Flora and Fauna. Except in the highest portions, the island is green with short vegetation. There are no trees. Land animals are absent. A few land birds and numerous sea fowl frequent the island.

Coast. The coasts are generally bounded by steep cliffs, some of them reaching 1,000 feet in height. Here and there beneath the cliffs are narrow margins of bouldery or pebbly beach.

Harbors and Anchorages. On the northwest side there are some rugged patches of rocks, and one or two rocky heights. Anchorage is possible on the south side of the island.

Population and Settlements. The island is reported to be uninhabited.

## 19. Uruppu Island

Minami Uruppu Strait. The strait between the Chirihoi Islands and Uruppu Island is free from danger, but strong tidal currents hamper navigation. Fogs are frequent.

Topography. Uruppu is the fourth largest of the Kurile Islands. It extends for a distance of 63 miles, its maximum width is about 11 miles, and its area is 298 square miles.

There are four principal mountain groups, separated from each other by lower land. The first of these groups lies about fourteen miles from the southern tip of the island. The highest peak in this mountain cluster reaches 3,650 feet. Twelve miles farther to the north is the second mountainous area, with peaks rising over 3,700 feet. Ten miles beyond rises Iwaosan Mountain and another peak, reaching elevations of 3,800 feet. Still farther to the northeast is the fourth mountain cluster. The last important volcanic eruption took place in 1894, but one of the volcanoes, Mount Jigoku, is still active.

At the southwestern and northeastern ends of the island, and along the southeastern coast, there are flat plains 120 feet and more in elevation. These appear to be former marine terraces. The northeastern end of the island terminates in a long, flat, and narrow tongue of land 80 to 100 feet in elevation, extending some five or six miles from the slope of the northeastern mountains. Inland the strip has a width of about two miles, gradually narrowing to a ridge towards the point.

Copper, lead, and iron deposits have been discovered, but not exploited. There is some sulphur, but the quantity is limited.

Drainage. Streams and lakes are few in number on Uruppu. The largest streams are from ten to fifteen miles long. Futamigawa is the most important stream of the southeastern coast. On the northwestern side, the Nishiogawa waters a large part of central Uruppu. Another stream of importance is the Kaimengawa in north Uruppu.

Takotan, the principal lake, lies in central Uruppu very close to the coast of Takotan Bay. It is about 1.3 miles long and a third of a mile wide. Another lake lies in the uppermost part of the mountain group at the southern tip of the island, but it is too small to be of great importance. The extreme southeastern part of the island is dotted with swamps and small fish ponds.

Flora and Fauna. The predominant forest growths are scrub pine, birch, and alder. The pines form impenetrable thickets generally throughout the island from an altitude of about 500 feet upward, and sometimes on the marine terraces near the sea. Bamboo grass and birches cover the mountain sides on the lower slopes. Swamps are accompanied by sedges and other swamp species. Grassy areas are occasionally found on the slopes of the hillsides and on the marine terraces.

The fox and a small rodent are found on Uruppu. Some attempts have been made to introduce fox farming. There are no bears. Land birds are rare, but sea and shore birds are common. Off the coasts, especially during the summer, salmon and other fish are plentiful. Shellfish are scarce.

Coast. Since the mountain masses lie on or near the northwestern coast of the island, the Okhotsk coastline is bold and steep, much of it terminating in almost perpendicular cliffs with no beaches at their base. There are, however, bayhead beaches facing most of the anchorages. The Pacific coast of Uruppu is less steep but it is rocky throughout. The southeastern coast is formed by high cliffs, at the base of which are rock-strewn beaches. A number of submerged rocks lie off this coast. Waters are uniformly deep, a 60-foot depth line lying from half a mile to two miles offshore throughout.

Harbors and Anchorages. Anchorage is possible in any of the bays on the northwest side of the island. Tsurigane Bay is sheltered from all directions except the northwest. Waters are too deep for anchoring beyond 1,500 yards offshore. There are no dangers. Takotan Bay, south of Tsurigane Bay, is open to all but southerly winds and has a depth of 60 feet about 1,200 yards off the small village. Here there is a good beach landing. On the Pacific side, benind Ana Point, there is an anchorage with 24 to 30 feet of water suitable for small vessels. East winds bring heavy squalls into this bay. Port Tovano (Kobune Harbor) about halfway up the southeast coast, affords shelter for small vessels. The entrance is about 120 yards wide, between bluffs. The depth of the water is from 8 to 10 fathoms. In 1929 this harbor was reported to be the calling place of summer cruise ships.

Population and Settlements. In 1940 the population was reported to be 46, of whom 41 were men and 5 were women. In 1930 there were only about a dozen permanent inhabitants. The settlements are situated along the coast near the harbors and are hardly more than fishing stations. Small huts have been erected by the Imperial Sea Products Company for fox hunting. There was a fox farm on the island in 1927.

## C. SOUTHERN KURILES

### 20. Etorofu Island

Etorofu Strait. Etorofu Strait is 24 miles wide, and free from danger on the Etorofu side. Off Cape Nobunots, on Uruppu, a reef extends nearly a mile into the strait; it is covered with kelp. Off the point and over the reef, heavy tide rips are formed. The strait is sometimes blocked with ice in the winter.

Topography. Etorofu is the largest of the Kurile Islands. It is 110 miles long and varies in width from 2 1/2 to 20 miles. Its area is about 930 square miles. This island has eight groups of mountains connected by comparatively low and flat stretches of land. At the southwest end of the island are the Beritaribi Mountains, with elevations of 4,000 feet. A sulphur deposit here was worked in the early days, but has long since been abandoned. To the northeast of the Beritaribi Mountains lie the Roko Mountains, attaining a maximum height of 3,000 feet. On the north side of Naibo Bay lies Atosa Mountain (4,050 feet), and there is another peak to the eastward of Atosa. The Hitokappu Mountains, lying on the west side of Hitokappu Bay, reach elevations of nearly 4,800 feet. On the east side of the bay are the Hotoko Mountains, with peaks from 2,600 feet to 5,000 feet in elevation. The Chirippu Mountains lie on the peninsula to the north of Shana and Bettobu, rising to a maximum height of 5,040 feet. Mountain groups are also found to the south and to the north of Bear Bay. Lowlands stretch across the width of the island between the various mountain groups.

Drainage. Etorofu has a number of large streams, many lakes, and six large swamp areas. There are hot springs in many parts of the island. The most important stream is the Shibetorogawa, which waters the greater part of the northern flank of the island. The Shibetorogawa is about 25 miles in length and empties into the Okhotsk Sea.

Most of the lakes of Etorofu lie between uplifted plateaus at altitudes of 10 to 30 feet above sea level. Three of them, Shibetoro, Kimonma, and Urumobetsu, are volcanic lakes. The first is formed by a lava dam; the other two are both crater lakes. The other lakes on the island are in origin sea-drowned valleys which have lost their connection with the sea through the formation of sand dunes, and have turned into fresh water lakes. Usually they lie at the foot of two volcanoes, dammed by a sand knoll, their longitudinal axes being at right angles to the sea coast.

The water temperature of the lakes is low, being nearly homothermal. During July and August the water temperature is somewhat less than 15° C. This has been explained by the low air temperature in summer and the very strong wind to which the lakes are constantly exposed. The lakes receive little sunshine; fog and clouds are exceedingly frequent. During the long winter the lakes are ice-covered.

Flora and Fauna. The interior of Etorofu is heavily wooded, and it is difficult to travel overland except by following the watercourses along which a few roads have been cut. The lower hills and plains support a heavy growth of birch, pine, and alder. Nettles and other coarse vegetation grow thickly on all the lowlands. Bamboo grass grows to a height of nine feet on many parts of the island.

Bears were very numerous in former years. Wolves and foxes are said still to frequent the wooded sections. There is some livestock, and Shana is reported to be a horse-raising center. Bird life is similar to that of Kunashiri and eastern Hokkaido. Insects include flies, sandflies, and mosquitoes. In the lakes and rivers, Pacific salmon spawn in great numbers. Fish other than salmon, however, are rare.

Coast. The northwest coast has a much longer shoreline than the southeastern side of the island. Except along the lowlands, the entire coast of Etorofu is steep. There are no offlying dangers to within a half mile of the shore.

Harbors and Anchorages. Etorofu Island has many indentations which permit anchorage. The northwest coast of Etorofu is studded with fishing villages and bays, and is connected by frequent and regular shipping service to Hokkaido. The only regular stopping place on the southeast coast is Toshimoe, which is served by ships direct from Nemuro and Hakodate.

In the middle of the southeastern coast is Hitokappu Bay. The western point of the bay is low and forms a part of the plain at the base of the Hitokappu Mountains. About two miles inside this point is the mouth of the Onebets River. The eastern point has a margin of high steep bluffs with a narrow margin of bouldery beach. The bay is six miles wide and extends about the same distance inland. At the northern extreme of the bay is the mouth of a river flowing from the large Toshimoe Lake. The slope from the beach is steep except in stream valleys and between the bay and Lake Toshimoe.

Rokko Bay is a large indentation near the southeast tip of Etorofu. This bay has 48 to 72 feet of water. In its northeast corner, where the best anchorage is found, there is a cliff-backed sand beach leading inland to a large plain sloping southeastward.

Tannemoe Bay is the southernmost anchorage on the northwest shore. This bay is the terminal of the cable line from Kunashiri Island. It provides little shelter, but depths of 24 feet are found a quarter of a mile offshore, and depths of 100 feet a mile offshore. The village of Tannemoe is reported to lack port facilities.

Moekeshi Bay is an extinct volcanic crater lagoon about three miles in extent. It provides excellent shelter, but the waters are too deep for anchoring. The entrance is deep and about three miles wide. The shores are steep cliffs.

Naibo Bay is open only to the northwest and has depths of 48 to 300 feet. It is about eight miles wide and extends four miles inland. There is a sandy beach at the north, in the center of which is the Naibo river. Two lowlands lie at the bayhead, one at either end and separated by a steep shore.

Utasutsu Bay is separated from Naibo Bay by the volcanic cone on Poronetsu Peninsula. Depths are 60 feet within 1,500 yards of land, and there is a sandy beach at the bayhead. This beach leads inland over a low rise to Lake Kimonma, thence to Lake Naibo through a marshy area, and finally to Naibo Bay.

Rubetsu Bay is sheltered from all directions except the northwest, but it is a rather poor harbor. The bay is equipped with a pier located north of Rubetsu village, and landings may also be made in the mouth of the Rubetsu River, which flows into the bay. Depths are about 30 feet at 1,000 yards northwest of the village and 120 feet toward the center of the bay. The shore is precipitous in some places, low and cliff-backed in others. Notoro Peninsula is flat-topped and grass-covered.

Shana Bay, the site of Shana, is three miles wide and extends one and one-half miles inland. It is open to the northwest. Depths are less than 18 feet at the bayhead and 36 feet in the middle. The holding ground is poor. Tides are 2.5 to 4.2 feet. The waters close to shore at the bayhead are shallow and dangerous for 1,000 yards. There is a wooden pier within the mouth of the Shana River. Landing may also be effected at Arimoe on the southwestern part of the bay.

Bira Roadstead is a large embayment east of the lofty, rugged Chirippu Peninsula. The roadstead is 30 miles wide, 12 miles deep, and open to the north. The shores are clear of dangers beyond 1,000 yards. At the southwest corner of Bira Roadstead is Bettobu anchorage, which is open to the north and east and has shoals extending 1,000 yards offshore. There is anchorage 1,500 yards offshore in water 42 to 48 feet deep. Bettobu has a sandy beach extending 13 miles to the eastward. Four miles north of Bettobu anchorage is Shamambe anchorage with 60 feet of water 440 yards offshore. Shamambe has a small wooden pier. Shibetoro anchorage, at the northeast end of Bira Roadstead, is open to westerly and northerly winds. One thousand yards northwest of the village, anchorages are available in 42 feet of water. There is a sandy beach near the village, from which a trail leads across the island to Moyoro Bay.

Population and Settlements. The island is divided politically into three districts. From south to north these are Rubetsu, including the towns of Rubetsu, Naibo, Tannemoe, Uembetsu or Tennei, and Toshimoe; Shana, including the towns of Shana and Bettobu; and Shibetoro, including the town of Shibetoro. In 1940 the Rubetsu district was reported to have a population of 2,814 (1,697 men and 1,117 women). There were 1,426 persons in the Shana district, 622 of them men and 535 women. In 1930 the total population of Etorofu was estimated to be 4,500.

Shana, the principal settlement, lies in the middle of the island on the northwest coast, on the banks of the Shana River. Rubetsu, perhaps the next most important town, lies farther to the south on the same coast. The only important village on the southeast coast is Toshimoe. Many fish canneries have been developed, and this fact explains the relatively large permanent population. In the summer about 5,000 additional persons come to Etorofu for seasonal work.

Communications. Etorofu has telephone, telegraph, cable, and postal communications services reaching most of the coastal settlements. A cable connects Kunashiri with Etorofu Island. There is a radio station at Shana which operates on a frequency of 185 kcs. and has the call letters JSH.

## 21. Kunashiri Island

Kunashiri Channel. Kunashiri Channel is 12 miles wide and has deep water throughout its course. There are no known dangers except for a reef off the western side of Atoiya Point. Tide rips and heavy winds are frequent in the channel, and tidal currents

reach a velocity of 4 1/2 knots. From February to May the channel is often blocked with ice.

Topography. Kunashiri Island is about 66 miles long and varies in width from four to sixteen miles, with an area of 440 square miles. Chachadake, 6,051 feet high, and Ruruidake, 4,940 feet high, are found at the northern end of the island. Chachadake is a truncated cone, with a second peak rising out of the crater of the lower one. Chachadake and Ruruidake are connected by a rugged ridge which blocks the entire northern end of the island. To the southeast of these mountains an extensive plain stretches to the Rausudake Mountains. One of the northern peaks of this group, Shimanobori, is about 3,000 feet high. Still farther to the south is the Tomariyama group of mountains. The extreme southern part of the island is composed of lower hills and marshy valleys.

Drainage. Kunashiri has several lakes and extensive marshes. To the north of the Bomariyama group is a large lake, the Tofutsuko, which is nine miles in circumference and 2.7 square miles in area. There is a smaller lake farther to the south. To the north of the Rausudake Mountains lie two lakes in a marshy plain. The Onnebetsugawa, a river of considerable size, waters the region to the south of Ruruidake and to the southwest of Chachadake, flowing thence to the Pacific Ocean. There are several hot springs on Kunashiri Island.

Flora and Fauna. Kunashiri is fairly well timbered, with firs predominating. The Rausudake Mountains have a thick forest growth, and there are large saw mills in this region on the east coast. The lower lands are covered with grasses and ferns; bamboo grass grows thickly in the valleys. Pasture lands are found on the lower slopes of the hills.

Bears, wolves, foxes, martens, land otters, and squirrels were formerly plentiful on Kunashiri Island. The straits and bays are favorite feeding grounds for whales and porpoises. At certain seasons salmon and salmon trout are plentiful. Immense shoals of herring pass by the coasts. There is some livestock raising, confined for the most part to horses.

Coast. The western side of Kunashiri Island is almost entirely steep and without good harbors, while the eastern side has several low sand beaches separated by cliffs. On the east, each of the mountain masses terminates in a cliffed headland, and each of the intermontane lowlands is open to the sea. The coast is generally rocky on both sides. Waters offshore are deep except in the south, where shallow water separates the island from the Nemuro Peninsula of Hokkaido.

Harbors and Anchorages. There are no well sheltered harbors on Kunashiri Island, but there are several open anchorages which may be used during offshore winds. No improved port facilities have been reported.

Shiranuka Bay, open to the south, is five miles in width and extends two and one-half miles inland. A reef lies in the middle of this bay about one mile offshore. The best anchorage, with depths of from 36 to 60 feet, is available on the northeast side.

Chinomiji Anchorage is situated off the mouth of the Onnebetsu River. The inshore waters are poor, but 42 to 60 feet of water are available one mile offshore.

Furukamappu Bay is four miles wide and extends inland for nearly two miles. It is open to the south, and its inshore waters are shallow. Depths of 24 feet are available just behind O Saki. There is a pier of a crab-canning factory in the bay.

Nikishoro Bay is the only anchorage on the northwestern shore of the island. It is a shallow roadstead, the shores of which are fringed with many rocks. It is open from the north, southwest, and northwest, and also on the east since the land on that side is low. Water depths are shallow inshore, but 60-foot depths are obtainable a mile and one-half offshore. Elsewhere on the west coast there are many small rocky inlets, affording inadequate anchorage.

Population and Settlements. The island is divided politically into two administrative districts: Tomari, named after the principal southern settlement, and Ruyobetsu, named after the most important settlement in the north. In 1940 the population of the Tomari district was reported to total 5,595 (3,042 men and 2,553 women); that of the Ruyobetsu district was reported to be 3,401 (1,959 men and 1,442 women). In 1930, the total number of inhabitants on Kunashiri was said to be 7,500.

The most important settlements are in the southern half of the island. Tomari, which was the first place in the Kuriles settled by the Japanese, formerly had a garrison and a small fortress. In 1930 it was still the site of the local administration. Tomari also had, at that time, a large primary school, a post office, and a thriving population.

Furukamappu, on the east coast in the middle part of the island, is another important settlement in the Tomari district. Other settlements in the south are Chinomichi, Seseki, Tofutso, and Bettoga.

The only important settlement in the northern part of the island is Ruyobetsu. Uennai and Shiranukatomari are smaller settlements in the northern district.

Communications. Kunashiri has telephone, telegraph, cable, and postal communications services reaching most of the coastal settlements. There is a cable from Nemuro on Hokkaido to Kunashiri Island, where it lands at the tip of Keramoi Point east of Tomari. Another cable connects Kunashiri, at Shiranuka Bay, with Etorofu Island.

## 22. Shikotan Island

Shikotan Strait. Shikotan Strait lies south of Shikotan Island and separates the latter from Taraku Island, the northernmost of a row of low, flat islands, islets, and rocks which extend to the Nemuro Peninsula of Hokkaido. The strait is 12 miles wide and has minimum depths of 96 to 120 feet. A shoal lies five miles to the northeast of Taraku. Navigation all around the island is difficult from November to April because of the ice. In summer, fogs appear suddenly in this vicinity.

Topography. Shikotan Island is oblong in shape and trends northeast to southwest. It is 16.1 miles long and 6.2 miles wide, with an area of 98 square miles. On the southern coast a range of mountains runs parallel with the long axis of the island. There are also several mountains on the northern coast, but they do not form a continuous range. The western and eastern ends of the island are mountainous. The highest peak, Shakotan-yama, is a cone 1,357 feet in altitude, rising near Shakotan harbor. Its northeastern half has been almost completely removed by the action of waves and currents, resulting in an almost vertical precipice of some 1,000 feet. None of the mountains is of recent volcanic formation. There is a basin in the center of the island about three and one-half miles wide and perhaps six miles in maximum length.

Drainage. There are numerous streams on Shikotan Island, and in the central basin there are swamps and bogs. There are no hot springs. The majority of the streams arise in the southern mountain range and flow toward the northwest. Poropet, in the western half of the island, is probably the largest and most important river. Although narrow, this river is said to be navigable for about three miles. The river valleys are deep, swampy, and narrow.

Flora and Fauna. Shikotan is not thickly wooded, although enough timber is available for house construction and fuel requirements. The trees grow for the most part on the spurs of the hills. The valleys are swampy and covered with coarse grass. Scrub pines and larches are found on the lower mountain slopes. A peculiar and valuable bamboo with dark spots on the cane grows on Shikotan. Bamboo grass is common, but it does not grow as high as in certain parts of Hokkaido.

There are still a number of foxes on Shikotan. Fox hunting is restricted, and the animals have become relatively plentiful. Cattle, sheep, and horses have been introduced. Wild fowl are fairly numerous. Salmon and salmon trout are plentiful in the bays and streams. Smelt, flounder, and rockfish are caught off the coast.

Coast. Shikotan has a very sinuous coastline. There are few good beaches, and in general the shores are precipitous. However, there are numerous small bays and coves, most of which have sandy beaches inside. Coastal platform terraces are well developed on the southeastern and southwestern coasts. In the east they are 1.86 miles wide, while in the west they are 3.1 miles in width. These terraces range from 264 feet above sea level in the southeast to 132 feet in the west. The embayments are fewer but longer on the north coast, and more numerous and shorter on the southeastern coast.

Harbors and Anchorages. Anchorage is available at several places on Shikotan Island. The most important of these are on the southern coast. The best harbor, Shakotan Bay, is situated at the northeastern corner of the island and is well protected. The bay is two miles in length and extends inland for about a mile. It has an outer roadstead and an inner harbor extending approximately one mile farther inland. The entrance to this bay is between high, steep, flat-topped cliffs with water over 100 feet deep in the channel. The entrance to the inner roadstead is about one-fourth mile wide and has 33 feet of water in its channel. The inner bay is roughly circular, with depths of 27 feet in the center.

Inemoshiri Bay is the northernmost bay on the southeast coast. It is open to the

southeast, and has depths of 100 feet just inside the jutting headland. There are, however, numerous rocks and other dangers in the bay. Safe anchorages are available inside in water 42 feet deep.

Matsugahama Bay is another important bay on the southeastern shore. Between it and Inemoshiri Bay, there are also five smaller embayments, which could accommodate small boats. Matsugahama Bay is reputed to be an excellent anchorage. The water behind the islands which guard its mouth is 36 to 42 feet deep. The entrance between the islands, Ko and Kamo, is only about half a mile wide.

In addition to these harbors, there are a number of other bays which provide shelter for small boats. Matakotan on the north coast is long, narrow, and fairly shallow. Notoro Bay on the southwest coast is too shallow to provide anchorage for more than small boats. Sakimui Anchorage, just north of Notoro Bay, is a roadstead open to the west with thirty feet of water half a mile offshore. Anama Bay has two distinct parts: a roadstead, which is open to the northwest and has 48 to 60 feet of water near its steep shores, and a long arm, with 18 feet of water in its channel, extending inland for about two miles and terminating in the Anama River which flows from the central basin.

Population and Settlements. In 1940 the number of inhabitants was reported to total 1,499, of whom 971 were men and 528 were women. In 1930 the total population was 750. On the average, 500 temporary fishermen come to Shikotan during the summer months.

The principal settlement is Shakotan, the site of the administration. Here there is a grammar school, which had 40 students in 1925. Another important settlement is on the Bay of Notoro, on the western side of the island. Here there is a branch grammar school, which had ten students in 1925. Along the southern coast there are a few fishing stations.

Communications. On the island of Shikotan, in 1934, a post office was reported open from May to November. During December and January an agent of the Nemuro Post Office visited Shikotan once a month. A radio station is located at Shakotan.

Figure 1. Attosan Mt. Etorofu Island. February, 1930.

Figure 2. Paramushiro Strait, looking south from Murakami Bay. Murakami Fishing Station in foreground.

Figure 3. Moyoro Bay. Etorofu Island. Summer of 1900.

Figure 4. Town of Rubetsu. Etorofu Island.

Figure 5. Fishing Station. Shimushu Island. Prior to 1932.

Figure 6. Sulphur Mining. Etorofu Island. Summer of 1900.

Figure 7. General Store. Etorofu Island. Summer of 1900.

Figure 8. Police Station. Etorofu Island. Summer of 1900.

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